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WITMER STONE



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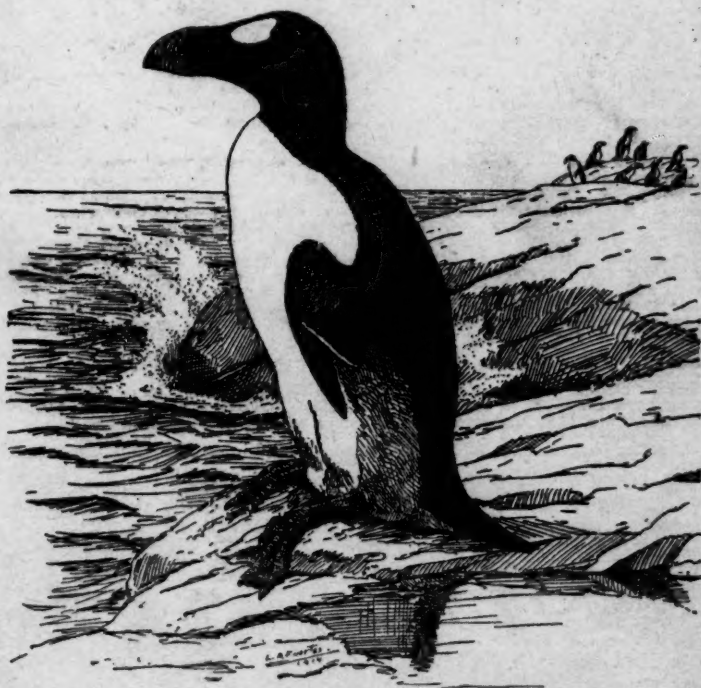
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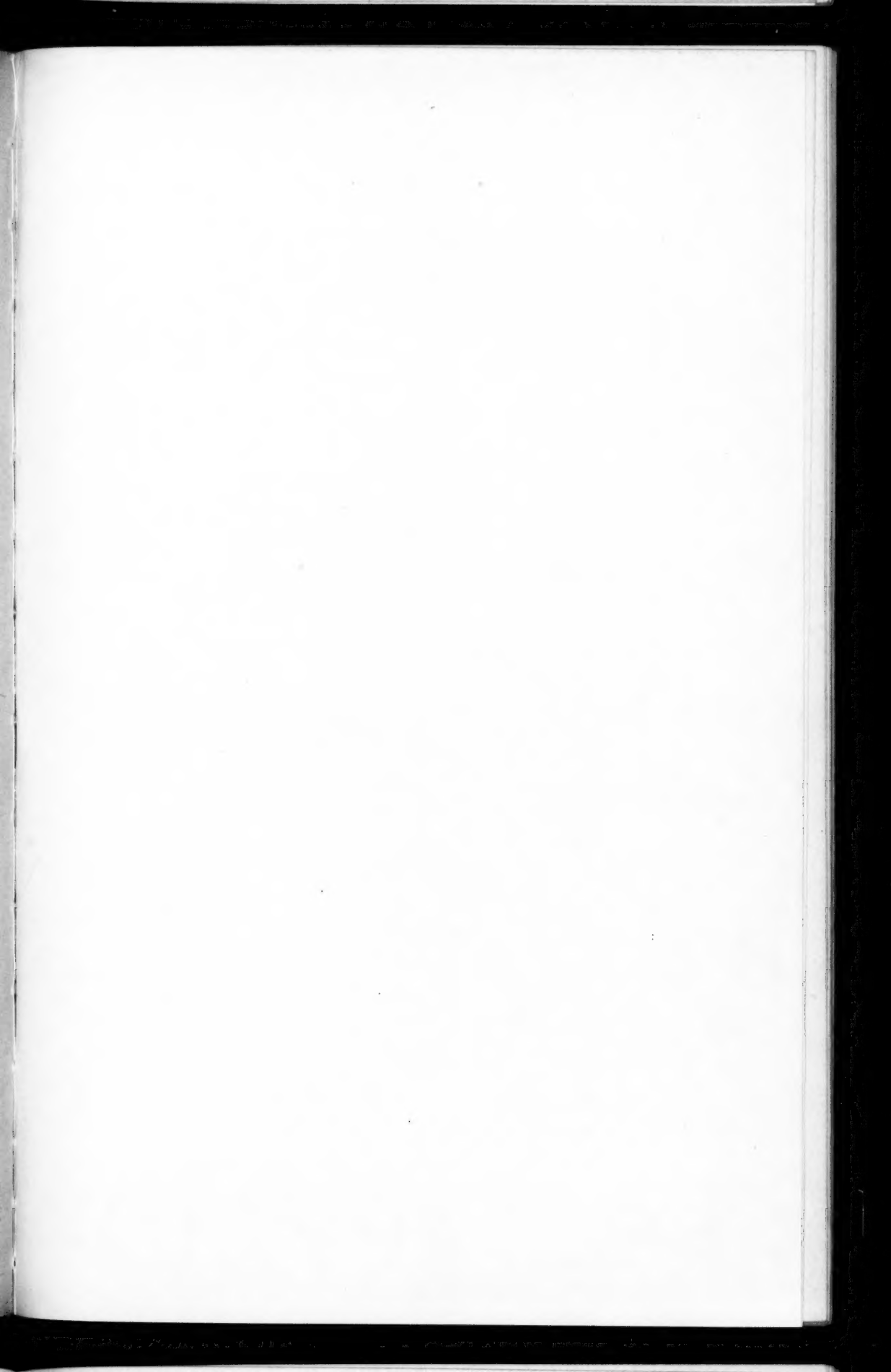
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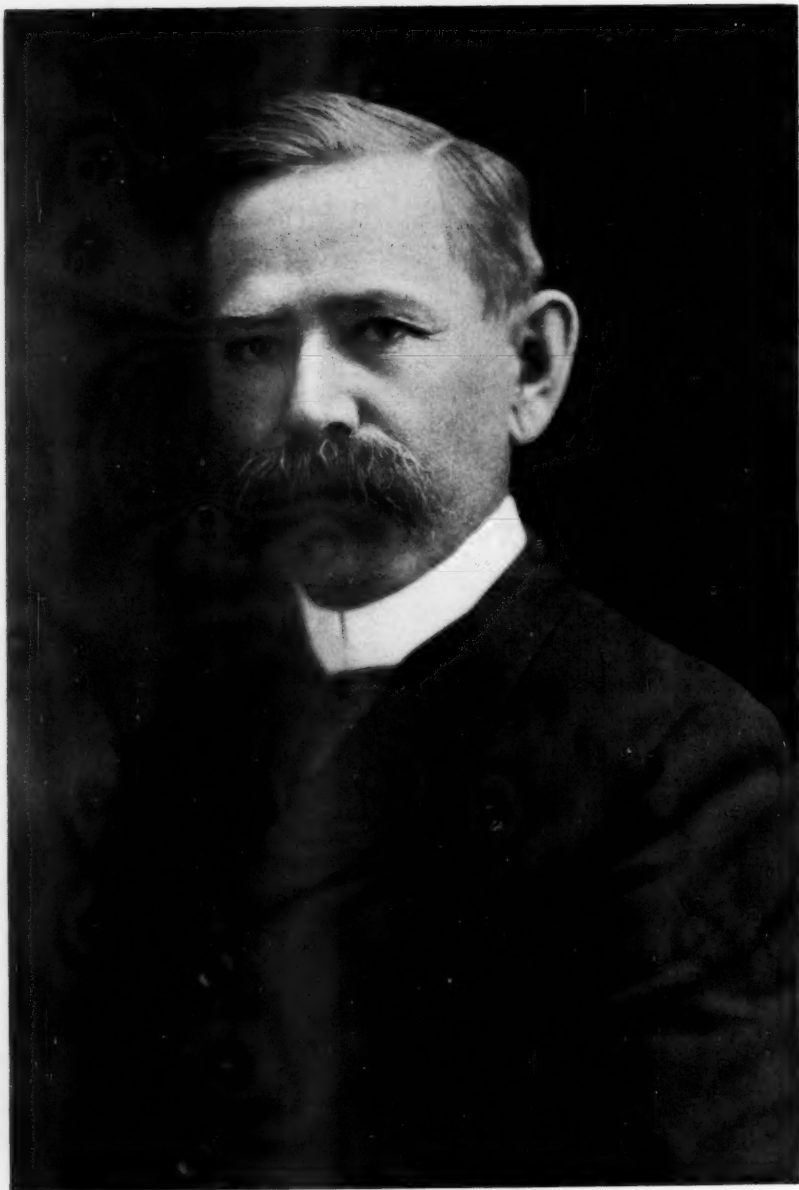
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Edgar A. Mearns

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VOL. XXXV.

JANUARY, 1918.

No. 1.

IN MEMORIAM: EDGAR ALEXANDER MEARNS.

Born, September 11, 1856 — Died, November 1, 1916.

BY CHARLES W. RICHMOND.

Plate I.

IN the death of Dr. Mearns the American Ornithologists' Union has lost one of its Founders and most active members, and ornithology one of its most enthusiastic disciples. Friendly and genial in disposition, with an all-consuming interest in the study of nature, he craved the society of men of similar tastes, and looked forward with keen anticipation to the rare occasions when he was permitted to attend the annual sessions of the Union. As an army surgeon, he was subject to the vicissitudes and uncertainties of that calling, and during the greater part of his twenty-six years of active military service was far removed from museums and libraries, both indispensable adjuncts to the working naturalist. While this circumstance greatly interfered with his systematic studies, and prevented him from publishing any extended results of his discoveries, which he was well equipped by training and experience to perform, it undoubtedly contributed largely to his development as a field naturalist, in which field he was without an equal in this country, and enabled him to amass collections that are probably unrivalled as the efforts of a single individual. His activities of over forty years covered a wide range, of which but little, aside

from his ornithological achievements, can receive mention in the present notice.¹

Edgar Alexander Mearns, son of Alexander and Nancy Reliance (Carswell) Mearns, was born at the home of his grandfather (Alexander Mearns), at Highland Falls, near West Point, N. Y., September 11, 1856. His grandfather, born a few miles from Aberdeen, Scotland, in 1786, came to New York in 1805, after making several perilous voyages at sea. He settled at Highland Falls about the year 1815, where Alexander, his son, one of seven children, was born in 1823. Dr. Mearns' father died in 1873, but his mother, who comes of New England stock, is still living.

Edgar Mearns manifested a remarkable interest in birds and animals at a very early age, and this taste was fostered by his father, who bought him a large illustrated book on the native birds. He took great pleasure in looking at the pictures — he was only three years old at this time — and his mother spent hours in teaching him their names and histories, and he soon developed a wonderful knowledge of the subject for one of his years. As he grew older, his father gave him a gun, and they would shoulder their arms and wander through the fields together, close companions. He was taught to set box traps in these early years, and if there was no one at hand to go with him to inspect them, he would steal out alone to see what the traps contained. As a school boy he was often tardy as a result of lingering in the woods in search of specimens. Every natural object interested and attracted him.

Young Mearns was educated at Donald Highland Institute, at Highland Falls, and subsequently entered the College of Physicians and Surgeons of New York, from which he graduated in 1881. At the outset of his medical course, he became personally acquainted with several of the young naturalists of the time, E. P. Bicknell, A. K. Fisher, C. Hart Merriam, and others, some of whom were attending the same routine of studies. He and Dr. Fisher chanced to share the same room at a boarding house at this time, and it was here that the budding young Linnæan Society held its early meetings.

¹ The War Department was asked for a copy of Dr. Mearns' military record, but the request was refused, owing to the great amount of extra work now placed on the department.

When he was about ten years old he began to write out and preserve his observations on birds, and some of these, written in a very youthful hand, are still extant; but it was not until 1872, when a boy of sixteen, that his efforts had crystallized into a plan to prepare a report on the vertebrate fauna of his region, and he set to work with all the energy and enthusiasm of youth to gather material and information for this purpose. It was in the spring of this year that he seriously began a collection, and he then formed the habit of carefully labelling his specimens, noting any important items connected with each object, such as its dimensions in the flesh, the color of its eyes, and other facts of interest. This habit was faithfully followed in after years, and in birds alone it is estimated that over 60,000 measurements were recorded in his various field catalogues. He did not confine his attentions to zoölogy, but devoted himself to the flora as well, and unlike many young students he was ambitious to learn something of foreign species, for as early as 1875 he was in correspondence with one or more European collectors, from whom he obtained many specimens in exchange.

His first published paper, on 'The Capture of several Rare Birds near West Point, N. Y.',¹ appeared in January, 1878, and it is worthy of comment that under the first species mentioned in this paper he acknowledged some information received from his "friend, Mr. Theodore Roosevelt," inasmuch as almost the last field work he ever undertook was with this same leader of men.

Three other notes followed shortly, while a paper on 'The White-headed Eagles in the Hudson Highlands,'² presented at the meeting of the Linnæan Society of New York, on April 6, 1878, was the first communication read before that newly formed society, and was appropriately published on July 4th. Toward the end of the year he had made sufficient progress with his big undertaking to look forward to a suitable medium of publication, and he wrote to Dr. J. A. Allen for advice. This letter, a copy of which was found among his manuscripts, is here reproduced, as it emphasizes the importance he attached to specific, as opposed to vague general

¹ Bull. Nuttall Orn. Club, III, No. 1, Jan., 1878, 45, 46.

² Forest and Stream, X, No. 111, July 4, 1878, 421; No. 113, July 18, 1878, 462, 463.

records, and illustrates the serious and painstaking method with which he handled his subject, a method of precision that he adhered to throughout his scientific work.

"117 W. 22nd St., N. Y.

Nov. 17, 1878.

Mr. J. A. Allen,

Dear Sir!

I have wanted to ask you several questions with regard to publishing a list of the Bds. of the Hudson River, and take the present opportunity to do so. Singularly enough, there is no medium of publication for such an article in this State. The "New York Academy" has recently changed very much in its character, and Mr. Geo. N. Lawrence tells me it would be impossible to get them to publish any lengthy paper on zoölogy, as he has much difficulty in getting them to take even brief articles of his own.

I am writing quite a bulky list of the Hudson Valley Bds., with which I am taking the greatest pains; particularly regarding dates of migration, breeding, life-habits, etc.

One of the more important points is the northern extension of the "*Carolinian Fauna*" up the Hudson.

I think the whole number of species that have been *taken* in the Hudson Valley (none others will be included), will amount to about 215.

I have been compiling the data of this list for several years. And now my object in writing to you, is to enquire whether there are any available facilities for getting the list published during the coming winter or spring. Would the "Boston Society Natural Hist.," or "Bulletin Essex Institute" do it? If you will be kind enough to advise me I shall be extremely grateful.

I have tabulated all of the specimens I have taken (1800) in Hudson region, and have formulated tables of *measurements* of all of the specimens taken. I think that these tables contain matter of sufficient interest and importance to warrant publication, in the case of the rarer species especially. As time progresses, we all know that very considerable changes take place, respecting the geog. distribution of the Bds. Very many ornithologists of the present day receive with incredulity many statements of the old

naturalists, which *may* be worthy of perfect credence. Now, if *De Kay* and *Giraud*, who are about our only N. Y. State authorities had made *specific* instead of *general* statements regarding such species as *Euspiza Americana*, *Lophophanes bicolor*, *Thryothorus ludovicianus*, *Parus Carolinensis* and *Corvus ossifragus*, their observations would be of the greatest value; but many persons now doubt the accuracy of these observations. I think the tables of specimens captured and their measurements would be useful in this way if in no other. However I am quite willing to be advised in this matter."

This paper, 'A List of the Birds of the Hudson Highlands, with annotations,' was begun shortly in the 'Bulletin of the Essex Institute,'¹ seven installments appearing between 1879 and 1881, with an 'Addendum' issued in 'The Auk,' in 1890. As printed, it lacks the tables of measurements, these having been reduced to a simple statement of the average dimensions of each species. Dr. Allen, in reviewing the first four parts, said: "... His own notes, even when relating to some of our best known birds, are replete with new information attractively presented, few lists having appeared which offer so much that is really a contribution to the subject in a field where so little really new is to be looked for." In announcing later parts, the same reviewer wrote: "The high praise accorded the earlier installments is equally merited by those now under notice, Mr. Mearns's 'List of the Birds of the Hudson Highlands' ranking easily among the best of our long list of contributions to local ornithology. There is much said about the habits of various species that is entertaining or new..." Dr. Mearns intended this paper as the beginning of a complete catalogue of the vertebrates of the region, but his entrance into the Army, in 1883, caused the abandonment of this plan, although he later (1898) published part of his data on the remaining subjects in a paper entitled "A Study of the Vertebrate Fauna of the Hudson Highlands, with observations on the Mollusca, Crustacea, Lepidoptera, and the Flora of the Region."²

After completing his medical course, in 1881, he married Miss

¹ Bull. Essex Inst., X, 1878 (1879), 166-179; XI, 1879, 43-52; XI, 1879, 154-168; XI, 1880, 189-204; XII, 1880, 11-25; XII, 1881, 109-128; XIII, 1881, 75-93.

² Bull. Amer. Mus. Nat. Hist., X, 1898, 303-352.

Ella Wittich, of Circleville, Ohio, who shared his love of natural history, especially botany, and gave him considerable assistance with his collections. They had two children, a son, Louis di Zerega Mearns, and a daughter, Lillian Hathaway Mearns.

In 1882, Dr. Mearns took an examination for entrance into the medical department of the army; but the events of that period are best told in the following extract from a letter he afterwards wrote (March 16, 1885) to his old preceptor, Robert Donald, then at Lanesboro, Minn.:

"I informed you I think of my determination, you know it had long been my wish, to enter the army, of my coming up before the Army Medical Examining Board and of my passing satisfactorily the examination. I did not receive my commission at once but spent the summer in settling up our business affairs and in preparing to go to New York for the winter.

I stored my collection of specimens at the American Museum of Natural History, N. Y., and on the first of October was called there as temporary curator of Ornithology, and spent the winter. While there I labelled *all* of their large collection of *European* birds, and many others from Asia and Africa, and got up catalogues of all the ornithological and oölogical specimens in manuscripts with printed headings for all items of desirable data concerning the specimens. The most important thing that I accomplished there was the establishment of a cabinet collection in vertebrate zoölogy for the use of students." Confirmation of this last statement is found in a recent work,¹ where it is stated that "the first material for study collections was given by Dr. E. A. Mearns in 1882, consisting of skins and eggs of North American and European birds."

Dr. Mearns participated in the organization of the American Ornithologists' Union in September, 1883, and on Dec. 3 of that year received his commission as assistant surgeon in the army, with the rank of first lieutenant. He was offered a choice of several stations, and selected that of Fort Verde, in central Arizona, as promising an exceptional field for natural history investigations. He was accordingly assigned to this post, which he reached early in 1884. Fort Verde, abandoned as a military station in 1891, was then a

¹ The Amer. Mus. Nat. Hist., its History, etc., 2d ed., 1911, 67.

desolate, arid place, but to Mearns it represented a new world, peopled with strange animals and plants, all worthy of the closest study. Within sight of the fort were ancient cliff dwellings, silent reminders of a vanished race; and San Francisco Mountain, then practically unexplored, was also visible in the distance. He set to work with his customary vigor, devoting all of his leisure time to the formation of a splendid collection of the animals and plants of this section of Arizona. The ruins in the neighborhood were also examined in considerable detail, excavations were made, and thousands of relics rescued from oblivion. He wrote a delightful and extremely interesting account of these explorations, under the title 'Ancient Dwellings of the Rio Verde Valley,' which appeared in 'Popular Science Monthly,' for October, 1890.

During the nearly four years he was stationed at this Arizona post, he was attached to various expeditions, some of them peaceful ones, others sent in pursuit of renegade Indians. In the letter to Mr. Donald, quoted above, he wrote: "We reached Fort Verde on March 25th, 1884, and, by a curious coincidence I am just in receipt of orders to leave on that day this year as surgeon in charge of the two cavalry regiments that are about to exchange stations between this department and Texas. I will have two acting Ass't Surgeons with me, which will make my duties light, and on the 900 miles of horseback riding that I will have, there will be much leisure and opportunity for zoölogical and botanical work. I was given the first choice to go on this expedition, and gladly accepted for the sake of the information which I expect to acquire of the fauna and flora of the southern part of Arizona and New Mexico. The medical director is personally friendly towards me and General Crook who commands the Department is particularly interested in my pursuits, and has chosen me to accompany him on two long expeditions through the wildest and least known portions of Arizona. On each of these trips an entire month was spent in the saddle, and a large collection of several hundred specimens of vertebrate animals was made, which were transported together with the rest of our plunder upon pack mules in panniers." The contemplated trip was duly performed, and a long account of it was recorded in one of his manuscript journals.

Dr. Mearns was popular with his brother officers, who marvelled

at his diligence and untiring zeal in the preparation of specimens, and many of them brought him trophies of various kinds as contributions to his collections. These cordial relations with his official associates continued throughout his career; indeed, his earnest and trustful nature and genuinely frank and straightforward character permitted no other course.

Early in 1888, he was transferred to Fort Snelling, Minn., where he remained until 1891, returning to this post again in 1903. In the winter of 1889-90, at which time he received his captaincy, a few months spent at the American Museum enabled him to describe several new mammals and birds from his Arizona collections, as well as to complete other manuscripts. During his stay at Fort Snelling, he borrowed a large series of Sparrow Hawks from various friends and museums, and investigated the geographical variation in this species, the results of which were embodied in a paper entitled 'A Study of the Sparrow Hawks (Subgenus *Tinnunculus*) of America, with especial reference to the continental species (*Falco sparverius* Linn.).'¹

When the Mexican-United States International Boundary Commission was organized, in 1891, Dr. Mearns was directed to act as medical officer, with orders to report for duty on Feb. 1, 1892. By "previous correspondence with Lieut. Col. J. W. Barlow, senior commissioner," he had obtained authority to establish "a biological section of the survey, provided this could be accomplished without additional cost" to the Commission. By coöperation with the United States National Museum he was enabled to carry out his designs, and he personally was able to conduct observations along the entire line, from El Paso to the Pacific, including San Clemente Island, which he visited to carry his investigations to their logical terminus. The work was continued up to September, 1894, except for an interval of a few months in the preceding year, when his time was divided between Forts Hancock and Clark, in Texas. During his work on the boundary line he had the services of one assistant for a considerable part of the time, as well as the voluntary aid of his associates on the survey. As a result of their combined industry, about 30,000 specimens were

¹ Auk, IX, July, 1892, 252-270.

collected and transmitted to the U. S. National Museum. The collections had been carefully made, to illustrate changes in the animals and plants in the various faunal areas through which the expedition passed, with the view of throwing some light on subspecific variation in them.

At the close of the Mexican Boundary work, Dr. Mearns was ordered to duty at Fort Meyer, Va., with permission to study his collections at the National Museum. In the time at his disposal he made considerable progress in identifying the mammals, and in discriminating the several life zones of the boundary line. In addition to the faunal zones currently recognized he suggested several lesser geographical areas, which he termed "differentiation tracts." He had planned an elaborate report on the biology, geology, etc., based on the boundary collections, and had accumulated a vast amount of data and manuscript for this purpose, but Congress withheld the sum estimated to cover the cost of printing and illustrations, and the project was reluctantly given up. The first part of his report on the mammals, the only one thus far published, was issued in 1907,¹ and contains upwards of 500 pages, with many plates and text figures. It includes much introductory matter of a general nature, with an itinerary of the expedition, an account of the life areas, lists of the trees, etc., of the Mexican border, and is an excellent example of the careful and detailed methods of its author.

In the autumn of 1896, he devoted his vacation to field work in the Catskills, and to rambles in the vicinity of his old home. A paper entitled 'Notes on the Mammals of the Catskill Mountains, New York, with general remarks on the Fauna and Flora of the Region,'² was based on investigations made at this time.

After a few months' duty at Fort Clark, Texas, in 1897-98, he was commissioned brigade surgeon (later chief surgeon) of Volunteers, with the rank of Major, in the Spanish-American war, serving until March 22, 1899, when he was honorably discharged and resumed his regular duties. His next station was Fort Adams, Rhode Island, where he served during parts of 1899-1900. While

¹ Bull. U. S. Nat. Mus., No. 56, Pt. 1, 1907.

² Proc. U. S. Nat. Mus., XXI, 1898, 341-360, figs. 1-6.

there he joined the Newport Natural History Society, and took an active part in its work, especially in collecting information relative to the present and former status of the mammalian fauna of the State. Toward the close of the year 1900, he suffered a nervous breakdown, probably complicated by earlier attacks of malaria, and was granted several months sick leave, part of which time he passed in Florida in an effort to regain his health. Three months or more were spent in camp in the Kissimmee prairie region, and while there, in February, 1901, he received notice of his advancement to Surgeon, with the rank of Major. Upon his return in May, much benefited by his outdoor life, he stopped at Washington and devoted several weeks to a study of the series of jaguars and other tropical American cats at the National Museum, the results of which appeared in a number of papers published during the next few months.

At Fort Yellowstone, where he was on duty in 1902, he was particularly active in gathering botanical material. It was here that he became aware of the destruction of bird and animal life through the presence of a heavy gas, supposed to be carbon dioxide, which settled in certain depressions and cavities of the earth, causing the death of all small animals that ventured into them. In the course of a few months he detected 16 species of birds, numbering many individuals, that had perished in this manner, and he was of the opinion that "hundreds, if not thousands" died from this cause during the year. He recorded the observations made here in a paper entitled 'Feathers beside the Styx,'¹ and before leaving the Park, he requested the superintendent to have the most dangerous spots provided with wire screens, to prevent the birds entering them.

Military service in the Philippines, which he visited in 1903-1904 and again in 1905-1907, afforded Dr. Mearns his first opportunity to study nature in an entirely new dress. The Islands possessed a rich and varied fauna, with many areas still unexplored or but slightly known, while many problems bearing on the distribution of species within the group remained to be solved. He was largely responsible for the formation of the "Philippine Scien-

¹ Condor, V, 1903, 36-38.

tific Association," a society organized on July 27, 1903, and having as its chief object the promotion of scientific effort in the Philippine Islands. It was begun under the presidency of Major-General Leonard Wood, a broad-minded officer, who encouraged every form of scientific endeavor. Mearns was a most active member of this league from its inception, and his quiet but effective powers of persuasion, and his ability to enthuse others were the means of securing much material and information for later study. During the year covered by his first visit, he served as surgeon in the military department of Mindanao, where his time was fully occupied, so much so, that it was often necessary for him to work far into the night to preserve specimens brought in to him during the day. In his official capacity he accompanied eight punitive expeditions against hostile Moros, but even under these circumstances his collections continued to grow, through the coöperation of his associates. Ethnological material, such as bolos and other native implements and weapons, together with various editions of the Koran, were secured on these forays and utilized as specimens. He accompanied General Wood on three trips of inspection to various islands, some of them zoologically unknown and rarely visited, and during parts of June and July, 1904, he ascended Mount Apo, the highest peak in the Philippines, where he made general collections and secured much information of value. In the exploration of Mount Apo he was anticipated by two English collectors, who had made collections there hardly a year before.

Hard work, combined with exposure in a tropical climate, had its effect, and in September, 1904, he was sent to the Army General Hospital at San Francisco, suffering from a complication of tropical parasitic disorders. He visited Washington after he had partially recovered his health, and took advantage of the opportunity to study some of his Philippine material, and in a series of five papers issued in the early part of 1905, he described six new genera and twenty-five new species of mammals, a new genus and nineteen new species of birds, besides recording eight species of birds not previously known from the Islands, with notes on other of the rarer forms. Other new types embraced in his collections were made known by experts in several branches of zoölogy.

On July 20, 1905, Mearns stopped at Guam, on his way back

to the Philippines, and here he made the inevitable collection that attended his every pause, however brief, in a new locality. In the few hours spent at Guam he obtained twenty-three birds and a variety of other material. To him every specimen had a potential scientific value, and if worth picking up at all was worth labelling with its full history. This applied to all material, whether in his own chosen field or not, his theory being that if a specimen proved to be of no interest it could be easily discarded at any time.

During the two years of his second period of service in the Philippines he was enabled to reach many interesting and obscurely known islands, having the good fortune to accompany General Wood on tours of inspection to the northernmost and southernmost points of the Archipelago, but space forbids notice of other than his two chief exploits. In May, 1906, he was placed in command of a "Biological and Geographical Reconnaissance of the Malindang Mountain Group," in western Mindanao, which was organized to explore and map the region and make collections of its natural products. This expedition, originally consisting of 21 whites and 28 native carriers, left the old fort at Misamis, on May 9th, and experienced many difficulties, ascending one spur of the mountain after another, only to discover that an impassable gorge several thousand feet deep separated it from the main peak. By May 25th, the party had become reduced to half its original number, through the departure of various members to the coast. The remainder pushed on, and at 11.30 o'clock on the morning of June 4th reached the top of Grand Malindang, the second highest point in the Philippines, and previously unvisited by civilized man. It was foggy and cold, but Dr. Mearns remained on the summit three days and nights to secure a good series of the animal life of that altitude. The return to the coast was comparatively uneventful and occupied only a few days. A good map of the region was prepared, and a number of new animals and plants were discovered, including *Malindangia*, a new genus of birds.

One achievement among Mearns' Philippine experiences stands out more prominently than any other, namely, his ascent of Mount Halcon, which was undertaken at the worst season of the year. This notable expedition, headed by Dr. Mearns, was organized "under the direction and with the support of Maj. Gen. Leonard

Wood," its object being to "determine some feasible route to the mountain, to ascend the highest peak, to secure as much data as possible and to collect objects of natural history." Elmer D. Merrill, botanist of the expedition, has fortunately given an account of this trip, and the extracts here quoted are from his paper. "Halcon the third highest peak in the Philippines, is situated in the north-central part of Mindoro. With no known trails leading to it, surrounded by dense forests, cut off from the coast by difficult ridges and large rivers subject to enormous and appalling floods, it stood seemingly inaccessible. Its location is perhaps in the most humid part of the Philippines, where the rains continue for nine months in the year, in a region geographically quite unknown and inhabited by a sparse population of entirely wild and very timid people, and on an island regarding which there is a widespread and generally accepted belief as to its unhealthfulness. Although within 100 miles of Manila and not more than 15 from Calapan, the capital of Mindoro, so far as I have been able to determine it remained unconquered up to the year 1906." John Whitehead, an English collector, who reached one of the outlying spurs of Halcon in the winter of 1895, wrote of this region: "I have seen a good deal of the tropics, but I never encountered such deluges, such incessant rain, or such thousands of leeches."

The Mearns party, consisting of eleven whites and twenty-two natives, left Calapan on Nov. 1, for Subaan, where it began its journey inland. The expedition discovered several uncharted rivers, which had to be forded or crossed on rude bridges constructed by the party, and progress was impeded by the almost constant rains, the difficulties of trail-cutting, and the swarms of leeches, the latter constituting a notorious drawback to travel in the forests of that region. The privations of the journey are graphically set forth by Merrill, who states that the expedition reached the summit on the afternoon of Nov. 22d, but remained only long enough to take aneroid readings and deposit a record of the trip. The return to the coast was not without trouble, since nearly fourteen days were required to reach Subaan. Carriers sent down in advance for food and supplies had not returned; the remaining members were obliged to carry heavy loads; a bridge made by the party was washed away and had to be rebuilt;

blinding rain continued for days without a pause; two men were lost for several days and later discovered in a half-famished state; and all of the party were on short rations. These and other troubles were incidents of the return trip. At length, however, the party reached Subaan, Dec. 5, after an absence of forty days. The zoölogical results of the trip were disappointing, since only by the exercise of great effort could specimens be prepared, or saved from later destruction by moisture. Furthermore, Dr. Mearns noted that the mountain birds had descended to lower levels to escape the rains, and flocks of them were observed passing up the mountain side when the party was on its return to the coast.

Late in 1907, Dr. Mearns returned from the Philippines, and was ordered to Fort Totten, N. Y., where he remained nearly a year. While at this station he indulged in a garden, and derived much satisfaction from growing a variety of vegetables, and registering in his notebooks the results of his toil, indicating the treatment, yield, and value of each kind planted. It was at Fort Totten that he became aware of the presence of the disease that finally brought his career to an end.

In 1908, President Roosevelt planned an extensive hunting and scientific expedition to Africa, and invited the Smithsonian Institution to participate, with the view of securing the best results in the preservation of both large and small game. The proposition was accepted, and Dr. Mearns was suggested for the position of naturalist. He agreed to undertake the journey, and on Jan. 1, 1909, he was retired, with the rank of Lieut.-Col., but "assigned to active duty with his consent," with orders to "report in person to the President of the United States for duty." Concerning the objects of the expedition President Roosevelt wrote him: "While our collections will be mainly of mammals and birds, yet if we can add reptiles and fresh-water fish, it will certainly be desirable. While not making a special effort in the collection of insects and plants, it will yet be desirable to do all that can conveniently be done in these directions.

"Dr. Walcott recommended you to me as being the best field naturalist and collector in the United States; and as I already knew well the admirable work you had done I was only too glad to assent to the recommendation, and accordingly at his request detailed

you to take charge of the scientific work of the expedition. I know no one who could do it as well."

The party, consisting of Col. Roosevelt, his son Kermit, Dr. Mearns, and Messrs. Heller and Loring, sailed early in March, 1909, and was absent nearly a year. It traversed sections of British East Africa, where Mearns seized the opportunity to collect material on the slopes of Mount Kenia up to the snow line; Uganda, across which he journeyed on foot, to enable him to make better collections and observations; finally passing through the Lado Enclave, down the White Nile to the coast. The course of the expedition and its results are matters of history, and it will suffice here to say that of the upwards of 4000 birds collected over 3000 were obtained by Dr. Mearns, who also secured many small mammals, plants and other objects.

Upon his return to Washington, Dr. Mearns began a general report on the birds, and published several preliminary papers describing new forms obtained on the expedition. While thus engaged, he was requested by Mr. Childs Frick to undertake another African journey, which was to include Abyssinia and little travelled parts of eastern Africa. Although less physically fitted to undertake difficult journeys than formerly, the advantage of having more material for comparison appealed to him and he was unable to resist the temptation. He became a member of this expedition, and the latter part of the year 1911 found him again in Africa, from which he returned in September, 1912. The party entered at Djibouti, French Somaliland, and travelled inland to Dire Daoua, thence to Addis Abeba, the Abyssinian capital. From there it worked generally south by way of the Abaya lakes, through the Galla country, making a loop round Lake Stephanie and skirting the south end of Lake Rudolf, and finally reached Nairobi. Part of the territory traversed was previously unexplored, and the liberal collections made over the whole route enabled Dr. Mearns to add greatly to his knowledge of the birds of eastern Africa. In April, 1912, when the expedition was in a remote part of southern Abyssinia, his son, Louis Mearns, a most estimable and promising young man, who had accompanied him on many lesser collecting trips, died in Baltimore, Md. The news of this sad occurrence, which was withheld by his family until his return to the United States, proved a severe shock to him.

With largely increased collections — the Frick expedition having added over 5000 birds to his available material — Dr. Mearns again resumed his studies, intending to work up all of the African series together. He had been relieved from further active duty at the end of the year 1910, and felt he could at last make his plans and move as he pleased. For years he had cherished the desire to settle down to museum research, to work over his collections and complete reports long projected. The opportunity was now at hand, but, alas! not to be realized. The privations and exposure of his many travels, together with the progress of his malady, had so undermined his system that his vitality had reached a low ebb. He continued at work for two or three years, with ever widening periods of inability to reach his office. Thinking to benefit his condition, he made several short field trips in this period, from which he returned without much improvement, and at length he succumbed, in the midst of his greatest undertaking, surrounded by a wealth of material that was largely the result of his own industry. He passed away at the Walter Reed Army General Hospital, in Washington, Nov. 1, 1916, leaving his mother, widow, daughter, and a large number of friends to mourn his loss.

Dr. Mearns was of an exceedingly generous disposition, one who had no desire to retain the fruits of his labor for his own glory and satisfaction, but preferred to donate them to museums where they would be accessible to all for study. His earlier collections, made up to 1891, went to the American Museum of Natural History, and later ones were given with equal liberality to the United States National Museum. Of shells, and probably other objects collected in large quantity, he distributed sets to various museums, while a series of human skeletons and crania from the cliff dwellings at Fort Verde was sent to the Army Medical Museum. An inkling of the importance of his contributions may be gathered from the statement of Standley (1917), who writes "As naturalist of the Mexican Boundary Survey of 1892-93 he collected or had collected under his direction the largest and best representation ever obtained, consisting of several thousand numbers, of the flora of that part of the United States and Mexican boundary which extends from El Paso, Texas, to San Diego, California. Dr. Mearns secured also what is undoubtedly the largest series of plants ever obtained

in the Yellowstone National Park, and in addition he collected extensively in the Philippines, Arizona, Florida, Rhode Island, Minnesota, and southern New York. All his collections are deposited in the U. S. National Museum, and probably no one person has contributed a larger number of plants to that institution." Hollister, in 1913, referring to Philippine mammals, said that of 1454 specimens in the National Museum, "probably by far the largest collection from the archipelago in any museum," Dr. Mearns had given 1012. More impressive figures may be cited in the case of birds, when it is known that more than one tenth of the total number of specimens of birds in the U. S. National Museum were either collected or contributed by him.

The published writings of Dr. Mearns number about 125 titles, chiefly on biological subjects, although medicine, archæology, and biography are also represented. Fifty or more new species of animals and plants have been named in his honor, as well as three genera, the latter constituting a rather unusual distinction. *Mearnsia*, a tree of the myrtle family, is a native of the slopes of Mount Halcon, and the same name has been conferred on a rare swift from the island of Mindanao, while *Mearnsella* commemorates a genus of fishes from the last named locality.

Dr. Mearns was a Patron of the American Museum of Natural History; Associate in Zoölogy of the National Museum; Correspondent of the Academy of Natural Sciences of Philadelphia; Fellow of the American Ornithologists' Union; Member of the National Geographic Society, of the Biological Society of Washington, of the Linnaean Society of New York, and of various other societies.

For one who had engaged in many difficult journeys, Dr. Mearns was of rather frail build, not more than five feet four inches in height, and probably never weighed much in excess of 140 lbs., but he was blessed with a spirit of determination that enabled him to accomplish nearly every task he undertook. Withal he was modest and unassuming in demeanor and seldom referred to his own exploits, but was a good auditor and always interested in the experiences of his friends. He avoided arguments and never indulged in criticism of others; was fair and impartial in his appraisal of men. He was always willing to seek advice and

give weight to the opinions of others. Serene and placid in disposition, cheerful and optimistic in temperament, he was fond of the beautiful in nature and art, even of poetry, yet philosophical and analytical and systematic by nature. As a friend, he was sympathetic, generous, steadfast, and intensely loyal.

NOTES ON THE BREEDING BIRDS OF PENNSYLVANIA AND NEW JERSEY.

BY RICHARD C. HARLOW.

SINCE the publication of Dr. Witmer Stone's two works: 'The Birds of Eastern Pennsylvania and New Jersey' (1894) and 'The Birds of New Jersey' (1909) the writer has done considerable field work in various parts of both states and portions of every nesting season from 1904 to 1917 have been spent in investigating the breeding habits of the resident or summer resident species. A large amount of data has naturally been collected much of which adds materially to our knowledge of the breeding range and relative abundance of the birds of Pennsylvania and New Jersey.

Some time ago Dr. Stone urged the writer to publish a summary of his observations making the pertinent remark that "the main trouble with oölogists is that they publish altogether too few of their records". It is undoubtedly true that many important nests are found every year about which nothing appears in print and the data concerning them would yield valuable information regarding the distribution and time of breeding of the species.

Acting upon Dr. Stone's suggestion the present paper has been prepared. Under each species are given the number of nests examined; the average number of eggs in a complete set, as well as the extremes, in order to show the range of variation; and the average and extreme dates for complete sets. Additional information is given under certain species and in the case of rare species

full data are given for each nest found. My field work has covered most of southern New Jersey from Mercer County and the Hackensack marshes to Cape May; and a majority of the counties of Pennsylvania, although the northwestern part of the state has not been studied as thoroughly as the other portions.

It has been thought best to consider all of the species given by Dr. Stone as possible breeders giving my data for such as I have found nesting and my reasons for regarding others as no longer breeding within our limits.

All the data presented are the result of my own studies except in a few cases where credit is given to others and in a few species which I have been unable to find breeding but whose nests others have found.

1. **Podilymbus podiceps**. **PIED-BILLED GREBE**.—Regular but scarce summer resident in the Hackensack marshes of northern New Jersey. Very rare summer resident in Pennsylvania where birds have been observed in the nesting season in Franklin, Sullivan, and Center Counties and the Cuckoo-like mating call heard. I have found four nests: 1. Newark, N. J.; June 6, 1908; five newly hatched young and one egg. 2. Newark, N. J.; June 6, 1908; six eggs. 3. Scotia, Center Co., Pa.; May 14, 1917; six eggs. 4. Scotia, Center Co., Pa.; July 10, 1917; six hatching eggs. Nests 3 and 4 were the product of the same pair of birds.

2. **Gavia immer**. **LOON**.—I know of but one instance of the Loon nesting in Pennsylvania or New Jersey, a nest found by Mr. Chas. Homan in May, 1908, near Bushkill, Monroe Co., Pa., which contained two eggs. (cf. Harlow, *Auk*, 1908, p. 471.)

3. **Larus atricilla**. **LAUGHING GULL**.—Regular breeder on the marshy islands on the coast of New Jersey, from Ocean Co. southward, and apparently holding its own. Data on fifty nests give: average set of eggs 3 (2-4); average date June 6 (May 25-July 15).

4. **Sterna hirundo**. **COMMON TERN**.—Regular breeder along the coast of New Jersey, where it is slowly increasing in numbers. I have breeding records from Ocean to Cape May Counties. Data on twenty-five nests give: average set of eggs 3 (2-4); average date, June 10.

5. **Sterna antillarum**. **LEAST TERN**.—After being practically exterminated on the New Jersey coast this species is beginning to reestablish itself. I have found two small colonies in Burlington County and at the time of my last visit, in 1916, they were holding their own. Data on seventeen nests give: average set of eggs, 3 (1-2); average date, June 12.

6. **Rynchops nigra**. **BLACK SKIMMER**.—Practically extinct in New Jersey until 1910 when two pairs were found on the coast islands of Atlantic County. Since then I have found two or three pairs present every year

and have found three nests: 1. Atlantic County, N. J.; June 15, 1915; three eggs. 2. Atlantic County, N. J.; June 15, 1915; four eggs. 3. Atlantic County, N. J.; June 17, 1916; three eggs.

[*Mergus americanus*. MERGANSER.—

[*Lophodytes cucullatus*. HOODED MERGANSER.—

[*Nettion carolinense*. GREEN-WINGED TEAL.—

[*Marila affinis*. LESSER SCAUP.—These four ducks were mentioned in Stone's work as possible breeders in Pennsylvania, but careful search has failed to discover any evidence of the fact and I feel confident that they cannot now be classed as summer residents.]

7. *Anas platyrhynchos*. MALLARD.—I have been unable to find the Mallard nesting near Williamsport or on the Loyalsock Creek where it had been formerly supposed to breed. It is however, a rare summer resident in Erie County and I have found a single nest on the New Jersey coast, in Burlington County, June 16, 1915, containing ten hatching eggs. Female and young seen several times later close at hand.

8. *Anas rubripes*. BLACK DUCK.—Rare but regular breeder along the coast of New Jersey from Ocean to Cape May Counties. In Pennsylvania, Mr. R. F. Miller and the writer saw a pair at Tinicum, Delaware County, June 18, 1913, which from their actions appeared to be breeding. I have also summer records from Erie and Fayette Counties. I have data from two nests: 1. Ocean Co., N. J.; July 3, 1914; eight eggs. 2. Ocean Co., N. J.; May 20, 1916; nine eggs.

9. *Aix sponsa*. WOOD DUCK.—Still breeds in both states although it has been almost exterminated. I have found them under circumstances which point to their breeding in Burlington, Cape May, and Cumberland Counties, N. J., and in Lancaster, Bedford and Pike Counties, Pa.

10. *Botaurus lentiginosus*. BITTERN.—In New Jersey, contrary to the published statements I have found the Bittern breeding regularly and fairly commonly on the salt marshes from Ocean to Cape May Counties as well as on the Delaware Bay shore. In Pennsylvania I have but two records; two young at Lamont, Center Co., June 17, 1909, and a pair present at Charter Oak, April-July, 1917, Huntington Co. It is apparently a very rare breeder in this state. Data on twelve nests give: average number of eggs in a set, 4 (3-5); average date, May 25 (latest July 18).

11. *Ixobrychus exilis*. LEAST BITTERN.—A rare breeder in suitable salt marshes along the New Jersey coast, becoming more common in the fresh water swamps toward the Delaware River and very common on the Hackensack meadows. In Pennsylvania it is very common in the Delaware marshes as far north as Bucks County. I have not found it breeding inland. Data recorded on forty-two nests give: average set 5 (3-6); average date, May 30 (May 22-July 12).

12. *Ardea herodias herodias*. GREAT BLUE HERON.—Still found in rapidly decreasing numbers in both states but only in the more remote places, as heronries in the settled districts are always broken up. They breed regularly but not commonly in the mountainous districts of

Pennsylvania. Data on sixteen nests give: average set, 5 (3-6); average date, April 15 (earliest April 8).

13. *Butorides virescens virescens*. GREEN HERON.—Very common breeder except in the wilder and timbered mountain districts where it is rare. Data on twenty-six nests give: average set, 5 (3-6); average date—fourteen southern New Jersey nests, May 24; eight central and northern Pennsylvania nests, June 1.

14. *Nycticorax nycticorax nævius*. BLACK-CROWNED NIGHT HERON.—Common summer resident in southern New Jersey and southeastern Pennsylvania north to Belvidere and Northampton County. I have never found it in the mountains and but rarely west of the Alleghanies. Data on sixty nests give: average set, 4 (3-6); average date April 25 (latest, June 6).

15. *Rallus elegans*. KING RAIL.—Confined to the Delaware valley from Bridesburg to Tinicum where it is a rather scarce breeder and probably south to Delaware Bay. Data on five nests give, average set 9 or 10 (6-13); average date, June 5 (earliest, May 30).

16. *Rallus crepitans*. CLAPPER RAIL.—Very abundant on the New Jersey salt marshes becoming scarcer from Ocean County northward. Data on twelve nests give: average set, 10 or 11 (6-15); average date, May 30 (May 20-July 15).

17. *Rallus virginianus* VIRGINIA RAIL.—A common but local breeder in marshes throughout Pennsylvania except in the higher mountain districts and west of the Alleghanies where I have no records. It is especially plentiful in the level valleys of central Pennsylvania.

In New Jersey I have found it nesting on the salt marshes in Ocean and Burlington Counties, though not commonly, and also along the Delaware. Data on seventeen nests give: average set on the salt marshes, 7 (6-8), in central Pennsylvania 10 (9-14); average date, salt marshes, June 7, central Pennsylvania May 16 (May 10-June 27). I am at a loss to account for the early nesting of the birds from central Pennsylvania. That the nests from the salt marshes are not abnormally late is shown by the records of ten others from the Delaware valley which average June 5.

18. *Porzana carolina*. SORA.—A rare breeder in the Delaware valley at Bridesburg but abundant in suitable marshes in central Pennsylvania where I have found it nesting in Center, Mifflin, Clearfield, Huntington, and Snyder Counties. Data on thirty-two nests from the latter district give: average set, 10 (8-15); average date, May 17 (May 10-June 11).

19. *Creciscus jamaicensis*. BLACK RAIL.—Contrary to all precedent the writer has found this rail a common though local breeder in suitable salt marshes along the New Jersey coast in Ocean, Burlington and Atlantic Counties, as well as on the edges of the coast islands. Its secretive habits and the fact that it is very difficult to flush probably account for the rarity of the eggs in collections. The writer has personally found eighteen nests and has examined a number of others. Data recorded on

twenty-four nests give the following: average set 7 (6-9), one set of 13; average date June 14 (June 6-July 23).

20. **Gallinula galeata.** FLORIDA GALLINULE.—Breeds regularly along the Delaware from Bridesburg to Tinicum on both sides of the river, also in the Hackensack marshes. Data on twenty-six nests give: average set, 10 (6-14); average date June 1 (May 22-July 12).

21. **Fulica americana.** COOT.—Seen on June 6, 1908, in the Hackensack marshes where it has been found nesting by others (Auk, 1907, p. 436.) I can find no evidence of its nesting in Pennsylvania at the present time.

22. **Philohela minor.** WOODCOCK.—A scarce but regular breeder in southern New Jersey and still found in suitable localities in the mountainous districts of Pennsylvania, especially in Huntington County. Very scarce in thickly populated sections of both states. I have data on but four nests: 1. Rio Grande, Cape May Co., New Jersey, May 9, 1908; four eggs hatching. 2. Barnegat, Ocean Co., N. J., April 20, 1914, four eggs. 3. Charter Oak, Huntington Co., Pa., April 8, 1917, four eggs. 4. Charter Oak, Huntington Co., Pa., April 14, 1917, four eggs.

[**Gallinago delicata.** WILSON'S SNIFE.—I have been unable to obtain any evidence of the breeding of this species in either Pennsylvania or New Jersey, though it was formerly supposed to be a summer resident in the northern parts of both states.]

[**Totanus melanoleucus.** GREATER YELLOWLEGS.—I have seen pairs of this bird performing their mating antics on the coast marshes of New Jersey as late as May 25 and they have circled about me calling constantly. I have also noted them in Ocean County as early as July 5 — migrating birds, of course, in both cases. May not instances such as these have prompted Ord's statement that they bred in New Jersey?]

23. **Helodromas solitarius solitarius.** SOLITARY SANDPIPER.—A very rare breeder in the higher mountainous districts. I have only one breeding record, an old bird with young, at La Anna, Pike County, Pa. (see Oölogist, March, 1906).

24. **Bartramia longicauda.** UPLAND PLOVER.—Rare but regular breeding bird in the open farming country of southern Pennsylvania. I have noted them in summer in Bucks, Chester, Lancaster, Dauphin, Adams, Cumberland, Northumberland, Mifflin, Snyder, Center, Indiana, and Greene Counties. Three pairs bred within eight miles of State College, Center Co. in 1917. I have found two nests: 1. George School, Bucks Co., Pa., May 18, 1908; four eggs. 2. Newtown, Bucks Co., Pa., May 24, 1910; four eggs.

25. **Actitis macularia.** SPOTTED SANDPIPER.—Breeds abundantly throughout both states. Data on sixteen nests give: average set 4; average date, May 28 (May 16-June 18).

26. **Oxyechus vociferus.** KILLDEER.—Common through both states as far north as Center Co., Pennsylvania, rare in the northern counties and absent from the higher mountains. Data on eighteen nests give: average set 4; average date, May 1 (April 20-June 18).

27. *Ægialitis meloda*. PIPING PLOVER.—A set of four eggs in my collection was taken at Beach Haven, N. J., June 8, 1886 (recorded by Stone, 'Birds of N. J.', p. 146). I have no more recent record.

28. *Colinus virginianus virginianus*. BOB-WHITE.—Formerly breeding plentifully in the lower parts of both states, and rarely even as far north as Warren and Pike Counties, Pa. Now very much reduced in numbers and locally distributed, more abundant in southern New Jersey than elsewhere. Data on three New Jersey nests are as follow: 1. Ocean Co., N. J., July 6, 1914; seventeen eggs. 2. Ocean Co., N. J., June 14, 1915; nineteen eggs. 3. Cape May Co., N. J., May 27, 1916; sixteen eggs.

29. *Bonasa umbellus umbellus*. RUFFED GROUSE.—Common in the mountainous districts of Pennsylvania, breeding from Warren to Pike Counties on the north, and from Franklin to Bedford Counties on the south. Rare in the well populated sections. In southern New Jersey it occurs rather uncommonly but I have found it nesting in Cape May County. Data on seventeen Pennsylvania nests give: average set, 10 or 11 (6-15); average date, May 4 (April 26-June 12).

30. *Meleagris gallopavo silvestris*. WILD TURKEY.—Scarce but regular breeder in the wilder parts of south central Pennsylvania, from Center, Clearfield and Lycoming Counties to Somerset and Franklin. I have found them fairly common in Stone Valley, Huntington County. Data on three nests are appended: 1. Vail, Blair Co., Pa., May 17, 1912; six eggs. 2. Greenwood Furnace, Huntington Co., Pa., May 20, 1915; twelve eggs. 3. Bear Meadows, Center Co., Pa., June 22, 1916; twelve eggs.

[*Ectopistes migratorius*. WILD PIGEON.—Inquiries in Pike and Wayne Counties, Pa., have brought forth the fact that the last breeding in the beech woods there occurred in the late seventies.]

31. *Zenaidura macroura carolinensis*. MOURNING DOVE.—Very common over the greater part of both states but much rarer in the northern mountainous districts of Pennsylvania. Data on thirty-one nests give: average set, 2; average date — for first sets, April 15 (earliest, April 4); for second sets, June 10 (latest, August 4).

32. *Cathartes aura septentrionalis*. TURKEY VULTURE.—Very common in southern New Jersey as well as in Delaware and Chester Counties, Pennsylvania, and less so in Montgomery. Plentiful in the Susquehanna valley as far north as Dauphin and Perry Counties and breeding regularly but less abundantly to Northumberland and Center Counties. I have not found it west of the Alleghanies. Data on nine nests give: average set, 2; average date, May 1 (April 20-May 26).

33. *Circus hudsonius*. MARSH HAWK.—Regular and fairly common breeder on the salt marshes of the New Jersey coast, where I have found twelve nests in Ocean, Burlington and Atlantic Counties and have observed the birds in summer from Cape May to Newark. It nests rarely in central Pennsylvania, in Center and Huntington Counties, and more

regularly in Erie County. Data on twelve New Jersey nests give: average set, 5 (4-7); average date, May 25 (May 14-July 9).

34. **Accipiter velox.** SHARP-SHINNED HAWK.—Rapidly decreasing in numbers and now one of the rarest breeding hawks in both states. A set of eggs in my collection taken at Clementon, N. J., on June 1, 1915, is my nearest record to Philadelphia as well as the most recent one for this district. I have noticed this hawk as a rare summer resident in Berks, Monroe, Pike, Wayne, Center, Huntington, Mifflin, Lycoming, and Alleghany Counties. Data on nine nests give: average set, 5 (3-6); average date, May 25 (May 14-June 29).

35. **Accipiter cooperi.** COOPER'S HAWK.—A breeding bird throughout both states, becoming much rarer in the northern, mountainous parts of Pennsylvania. Data on twenty-four nests give: average set, 5 (3-6); average date, May 5 (April 23-June 10).

36. **Astur atricapillus atricapillus.** GOSHAWK.—A very rare breeder in the few heavily timbered, most boreal, mountain districts of Pennsylvania. Apparently does not breed on the Pocono plateau. A set of two eggs taken in Warren County, Pa., on April 3, 1910, in my collection.

37. **Buteo borealis borealis.** RED-TAILED HAWK.—Breeds rarely in southeastern Pennsylvania, more commonly in the southern tier of counties to the westward and very commonly in the southwestern counties, Greene and Washington, as well as in Warren and Indiana. I have been unable to find it nesting in central or northeastern Pennsylvania or in southern New Jersey. Stone, in his 'Birds of New Jersey' gives it as a common resident but if there is a definite record of its nesting in the southern counties I have failed to find it. Data on nine nests give: average set, 2 (3); average date April 6 (March 24-April 20).

38. **Buteo lineatus lineatus.** RED-SHOULDERED HAWK.—In New Jersey it is a scarce but regular summer resident in the southern counties becoming very common in the northern half of the state. In Pennsylvania it is a rare breeder in the southeastern portion and in Greene County in the southwest; more common from Alleghany county north and quite common in the mountains from Warren to Monroe, avoiding the central counties but becoming the common breeding hawk of the Pocono plateau. Data on nineteen nests give: average set, 3 (2-4); average date, April 23 (April 15-May 25).

39. **Buteo platypterus.** BROAD-WINGED HAWK.—Scarce but regular summer resident in southern New Jersey where I have found them under circumstances that left no doubt but that they were breeding, in all the southern counties. In Pennsylvania it is fairly well distributed in the breeding season being most plentiful in Chester, Delaware and the central counties, and least common in the most northern mountainous counties. I have found its nests north to Pike County in the east and from Alleghany to Warren in the west. Data on twelve nests give: average set, 2-3 (4); average date, May 15 (May 7-June 13).

40. **Haliaeetus leucocephalus leucocephalus.** BALD EAGLE.—Almost if not quite extinct as a breeding bird in New Jersey, though formerly nesting regularly in Salem, Cumberland, Cape May, and Burlington Counties. In Pennsylvania I know of an occupied nest in Erie County and a pair may still nest along the Susquehanna, in Lancaster County, though the former well known eyries of that locality have not been occupied during the last two years. Probably a pair or two breed in the wild lake region of Pike, Wayne and Monroe Counties, where I still see them frequently. I have known of Eagles nesting at the following places in Pennsylvania in the last ten years, all of which are now deserted owing to the birds having been shot, or the nest trees falling down, viz: Washington Boro and Peach Bottom, Lancaster Co., Milford, Pike Co., and Towanda Bradford Co. Data on three nests follow: 1. Towanda, Bradford Co., Pa., Feb. 28, 1914; two eggs. 2. Washington Boro, Lancaster Co., Pa., March 2, 1915; two eggs. 3. Erie Co., Pa., May 15, 1915; two large young.

41. **Falco peregrinus anatum.** DUCK HAWK.—This magnificent falcon still breeds at a number of places in Pennsylvania. I have known of eight pairs nesting in the state within the past five years — along the Delaware from the Nockamixon cliffs to Monroe County and along the Susquehanna from Lancaster to Bradford Counties, as well as near the cities of Williamsport and Scranton. Data on seven nests give: average set, 4 (3-5); average date, April 15 (April 8-April 29).

42. **Falco sparverius sparverius.** SPARROW HAWK. — Breeds throughout New Jersey though not commonly in the southern counties or near the coast. Very common in the southern half of Pennsylvania becoming much scarcer in the northern and wilder mountainous sections. It is a rare breeder on the Pocono plateau, in my experience. Data on thirty-six nests give: average set, 5 (3-6); average date April 28 (April 13-June 4).

43. **Pandion haliaetus carolinensis.** OSPREY.—Nests commonly along the New Jersey coast, being most plentiful in Cape May and Cumberland Counties and nesting up the Bay shore as far as Salem County. In Pennsylvania it is a rare breeder on the lakes of the northeastern counties and at Foxburg, Clarion County. Data on seventy-five nests give: average set, 3 (2-4); average date, May 20 (May 7-June 10).

44. **Aluco pratincola.** BARN OWL.—I have found the Barn Owl only in southeastern Pennsylvania — in Delaware, Chester, Montgomery and Cumberland Counties. Data on eight nests give: average set, 6 or 7 (4-8); average date, April 1 (February 28-June 8).

45. **Asio wilsonianus.** LONG-EARED OWL.—This owl in my experience is a very rare breeder in both states. I have only one record, a set of three eggs found in Berks County, Pa.

46. **Asio flammeus.** SHORT-EARED OWL.—A very rare summer resident on the salt marshes of the New Jersey coast, where I have seen them and found their pellets in the summer months in Ocean and Burling-

ton Counties. I have found but one nest — June 17, 1915, on an island in Barnegat Bay, containing five half fledged young.

47. *Strix varia varia*. BARRED OWL.— Apparently a regular though scarce breeding bird throughout New Jersey. I have seen them in April or May, in Cape May, Cumberland, Ocean, Atlantic, Burlington and Salem Counties. In Pennsylvania I have found it only in the wilder mountainous sections, from Warren to Pike Counties and south to Franklin. I have found only one nest — June 1, 1912, Warren Co., Pa. containing three eggs. This date seems entirely too late to be normal.

48. *Cryptoglaux acadica acadica*. SAW-WHET OWL.— I have but one summer record for this species, a bird seen in northern Huntingdon County, Pa., on May 26, 1913, and as this individual was blind in one eye it was possibly not a breeding bird. Young birds have however been taken in the mountains by others, as is well known.

49. *Otus asio asio*. SCREECH OWL.— Very common in both states but becoming much rarer in the mountainous districts and not found at all in the primæval forests. Data recorded on twenty-one nests give: average set 4 (3-6); average date, April 10 (April 1-May 4).

50. *Bubo virginianus virginianus*. GREAT HORNED OWL.— Rare resident in New Jersey confined mainly to the wilder sections. I have found it several times in Salem County during the nesting season. In Pennsylvania it is generally distributed, everywhere scarce, and becoming exterminated in all but the wilder sections. Three nests were found at Waynesburg, Green Co., Pa., 1. February 24, 1916, 2 eggs; 2. March 27, 1914, three half-fledged young; 3. March 28, 1914, two half-fledged young. Another nest March 12, 1914, at Charter Oak, Huntingdon Co., Pa., contained two newly hatched young.

51. *Coccyzus americanus americanus*. YELLOW-BILLED CUCKOO.— A common breeding bird in the lower ground of both states becoming less plentiful towards the mountains. I have not found it in the boreal parts of Pennsylvania. Data on twenty-four nests give: average set, 3 (2-5); average date, June 15 (May 24-August 15).

52. *Coccyzus erythrophthalmus*. BLACK-BILLED CUCKOO.— Replaces the former species in the northern and mountainous parts of both states, and a rare breeding bird in the southern counties, especially east of the mountains. Data on nine nests give: average set, 3 (2-7); average date June 10 (April 29-June 23).

53. *Ceryle alcyon alcyon*. BELTED KINGFISHER.— Generally distributed throughout both states all the way from the coast of New Jersey to the tops of the Alleghanies, in suitable locations. Data on twenty-eight nests give: average set, 6 or 7 (5-8); average date, May 10 (April 29-June 23).

54. *Dryobates villosus villosus*. HAIRY WOODPECKER.— A regular breeding bird over practically the entire area of both states. Particularly common in Greene County in the southwestern corner of Pennsylvania and on the Pocono plateau. Data on sixteen nests give: average set, 4 (3-5); average date, April 25 (April 12-May 14).

55. *Dryobates pubescens medianus*. DOWNY WOODPECKER.— Very common throughout both states except in the wilder mountainous sections where it is much less plentiful. Data on thirty-two nests give: average set, 5 (3-6); average date, May 14 (May 1-June 2).

56. *Sphyrapicus varius varius*. YELLOW-BELLIED SAPSUCKER.— I have found this species nowhere a common summer resident of Pennsylvania and confined to the highest and most boreal parts of Warren, Pike, Wayne and Monroe Counties. I question the statement in Warren's 'Birds of Pennsylvania,' that it breeds in Cumberland County, as his informant probably confused this with one of the preceding species, all three being confused in the popular mind. I found a nest at Pocono Lake, Monroe County on June 17, 1908, but with the set not completed, and another at South Sterling, Wayne County, with a set of four eggs, on June 11, 1917.

57. *Phloeotous pileatus abieticola*. NORTHERN PILEATED WOODPECKER.— Still breeds regularly though locally in the wilder mountainous sections of Pennsylvania, from Monroe, Wayne and Pike Counties to Warren and south to Huntington; also in Greene County, along the West Virginia line. Steadily decreasing in numbers. I have found five nests: 1. Shingletown, Center Co., Pa., May 2, 1912; two eggs. 2. Monroe Furnace, Huntington Co., Pa., May 8, 1913; four eggs. 3. LaAnna, Pike Co., Pa., May 18, 1913; four eggs. 4. Mooresville, Huntington Co., Pa., May 15, 1914; four eggs. 5. Charter Oak, Huntington Co. Pa., May 11, 1917; four eggs.

58. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.— Scarce and very local in New Jersey and very rare in the southern half of the state, where I have seen them in Camden, and Burlington Counties and once in Gloucester. In Pennsylvania it is locally distributed breeding in the east from Chester and Delaware Counties to Pike. It is rare in the northern and mountainous regions being there confined to burnt-over districts or to water killed trees in ponds. It is resident and very common in Center County but west of the Alleghanies I have found it only in Warren County. Data on twenty-eight nests give: average set, 5 (3-6); average date, June 3 (May 24-July 11).

59. *Centurus carolinus*. RED-BELLIED WOODPECKER.— A scarce but regular breeder in Washington and Greene Counties in the southwestern corner of Pennsylvania. A set of four eggs in my collection was taken in Green County on May 3, 1907.

60. *Colaptes auratus luteus*. NORTHERN FLICKER.— Breeds abundantly throughout both states, becoming scarcer in the wilder mountainous districts, where however it nests in slashings miles from civilization. Data on one hundred and sixteen nests give: average set, 7 (5-13); average date, May 12 (April 24-June 16).

61. *Antrostomus vociferus vociferus*. WHIP-POOR-WILL.— Common breeder in less settled sections throughout New Jersey, occurring in the greatest numbers in the swamps of Cape May, Atlantic, Burlington and Cumberland Counties. In Pennsylvania I have found it commonly

throughout the mountains and also in Greene County. Data on seven nests give: average set, 2; average date, May 28 (May 14, Pike Co., Pa.—June 20, Greene Co.).

62. *Chordeiles virginianus virginianus*. NIGHTHAWK.—Locally distributed throughout both states. Most common in parts of Berks County, Pennsylvania. Nests regularly on the gravel rooves of houses in Pittsburgh. Data on eight nests give: average set, 2; average date, June 1 (May 24–June 29).

63. *Chætura pelagica*. CHIMNEY SWIFT.—Abundant breeder throughout both states. In the wilder regions it still sometimes nests in hollow stumps and in Pike and Monroe Counties, Pa., I have found three nests in dark barns. Data on twelve nests give: average set 4 (3–5); average date, June 6 (May 24–July 15).

64. *Archilochus colubris*. RUBY-THROATED HUMMINGBIRD.—Locally distributed; apparently most abundant in southern New Jersey, and on the Pocono plateau and in Greene County, Pennsylvania. Data on seventeen nests give: average set, 2; average date,—six nests southern New Jersey, May 28, four nests southern Penna., June 1, seven nests, northern Penna., June 7.

65. *Tyrannus tyrannus*. KINGBIRD.—Common and generally distributed. Data on thirty-five nests give: average set, 3 (4); average date—12 southern New Jersey nests, May 30, fourteen northern Penna. nests, June 7.

66. *Myiarchus crinitus*. GREAT CRESTED FLYCATCHER.—Common though somewhat locally distributed and absent or very local in the mountains. Data on twenty-six nests give: average set 5 (4–6); average date, June 5 (May 26–June 24).

67. *Sayornis phœbe*. PHŒBE.—Abundant over the greater part of both states but rather scarce in southern New Jersey especially in Cape May County. Data on one hundred and seventy nests: average set, 5 (3–6); average date—first sets April 25 (earliest April 12); second sets, June 8 (latest July 18).

68. *Nuttallornis borealis*. OLIVE-SIDED FLYCATCHER.—A very rare summer resident in the boreal regions of Pennsylvania. I have found it only in Pike, Wayne, Monroe and Warren Counties. A set of two eggs in my collection was taken at Warren, June 24, 1904.

69. *Myiochanes virens*. WOOD PEWEE.—Very common and generally distributed. Data on fourteen nests give: average set, 2 or 3; average date, June 10 (June 3–August 1).

70. *Empidonax flaviventris*. YELLOW-BELLIED FLYCATCHER.—I have one summer record of this species for Warren County, Pa., and two for Monroe. It has been found nesting by others (see Auk, 1916, p. 200).

71. *Empidonax trailli alnorum*. ALDER FLYCATCHER.—I have found the Alder Flycatcher in summer only at Cresco and Pocono Lake, Monroe County and Gouldsboro, Wayne County, Pennsylvania. (For record of nests see Auk, 1916, p. 199).

72. **Empidonax virescens.** ACADIAN FLYCATCHER.—Breeds over the low ground of both states, and ranges up the river valleys, rarely into the mountains. I have found it in Center County nesting in the same ravine with such species as the Canada Warbler and Solitary Vireo. Scarce in Cape May Co., N. J. Data on twenty-six nests give: average set, 3 (2); average date, June 6 (May 30–July 16).

73. **Empidonax minimus.** LEAST FLYCATCHER.—Breeds commonly over the northern half of New Jersey and the mountainous parts of Pennsylvania south to Berks and Center Counties and rarely to Montgomery. Data on twenty-one nests give: average set, 4 (3); average date May 30 (May 25–June 27).

(To be concluded.)

UNCOLORED PRINTS FROM HAVELL'S ENGRAVINGS OF AUDUBON'S 'BIRDS OF AMERICA'.

BY HARRY HARRIS.

Plates II and III.

EIGHT uncolored prints of Audubon's folio plates have lately come into the writer's possession, and their examination has led to a closer study of the work of the engraver. A careful comparison of the prints with the corresponding published issues has brought out a few points which may prove of interest, especially as the comparatively scant reference to Robert Havell Jr. found in the literature of American Ornithology perhaps indicates that complete recognition has not been given this master engraver for his part in immortalizing the genius of Audubon.

Mr. George Alfred Williams of Summit, N. J., has lately said,¹ in a very illuminating review of Havell's career, that to the genius of this man is due much of the extraordinary artistic success which

¹ Williams, George Alfred. Robert Havell, Junior, Engraver of Audubon's "The Birds of America." *The Print-Collector's Quarterly*. October, 1916. Houghton, Mifflin Co., Boston.

attended the publication of the drawings of the great naturalist and that without the coöperation of a talent capable of the task of faithful, intelligent, and artistic reproduction, the work would have failed of its ultimate purpose.

Audubon at first entrusted the engraving of his plates to W. H. Lizars, one of the greatest engravers of bird-portraits of his time. His results however did not satisfy Audubon's demands, and after five plates had been done the work was taken from his hands and given over to Robert Havell Jr., of London. This Havell, the last of a long line of artists and workers in copper-plate, was the sole engraver of all the Audubon plates, save the five referred to, and three of these were later retouched by him. That the elder Havell engraved any of the plates is clearly disproved in the article above quoted.

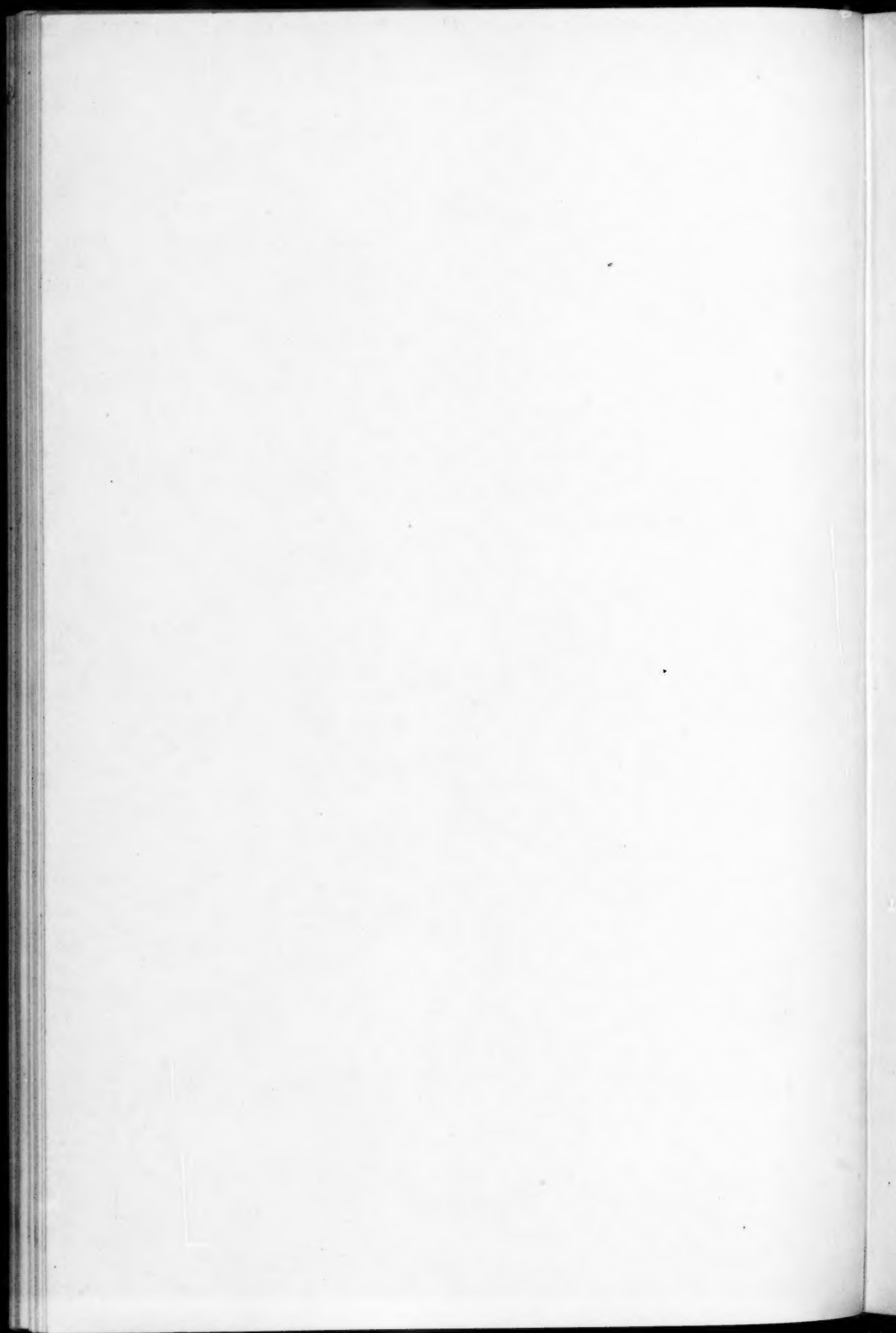
Havell's work at all times fully met the rigid requirements of Audubon, who on more than one occasion expressed with enthusiasm his entire satisfaction in the quality of Havell's engraving.

Late in 1838, after the last part of 'The Birds of America' had issued and when Havell was dismantling his plant preparatory to removal to America, he wrote to Audubon for instructions relative to the manner of packing "five perfect sets" and certain "loose sets." This reference to loose sets presumably included all the trial proofs worthy of preservation, together with all other prints that had accumulated during the twelve years of work, and, for one reason or another, had not been colored. Audubon's reply¹ to this inquiry, under date of February 20, 1839, indicated that he did not know the nature of these loose sets but he states particularly that he wanted them saved. A prolonged search of all available sources of information has failed to disclose another reference to these loose sets. There is no reasonable doubt, however, that they were *all* shipped to Audubon, since those that have been preserved to the present day are directly traceable to him or his descendants. No record of their number seems to have been kept by either Audubon or Havell. I am informed by Mr. Williams that the only prints brought to this country by Havell, aside from the superb set colored

¹ Dean, Ruthven. The Copper-Plates of the Folio Edition of Audubon's 'Birds of America,' With a Brief Sketch of the Engravers. Auk, Vol. XXV, No. 4, 1908.



FROM THE COLORED PLATE.



entirely by himself, were his own working proofs. These proofs, now owned by Mr. Williams, are cut into small portions, probably for the greater convenience of the engraver in handling.

Mr. Ruthven Dean, who has thrown so much light on obscure matters pertaining to Auduboniana, writes that he has in his possession an uncolored proof from the Foolish Guillemot plate and that he has data referring to some three hundred other black prints which were at one time in the hands of Audubon. This number indicates the existence of approximately a complete set.

The eight prints¹ above referred to as discovered by the writer were presented some time during the year 1850 — together with others since destroyed by fire — by M. and Mme. Audubon to their friend and neighbor Judge John B. Church. These prints are unquestionably trial proofs, as, aside from possessing a characteristic brilliance and sharpness, they show certain discrepancies and interesting errors in the lettering which render these particular copies unfit for use in the published work and made it imperative that the engravings be immediately corrected.

It will be noted in the accompanying reproduction of the proof from the American Crow plate that the scientific name of the bird, *Corvus americanus*, is repeated after the words, "Black Walnut". In correcting this error by substituting the scientific name of the tree, *Juglans nigra*, it was found necessary to reengrave the words Black Walnut, so that the entire line might conform to the altered display. Unfortunately some pencil notations on this print had been erased before it came into the writer's hands. These may have been made by Havell himself, as his fragmentary working proofs are so marked. In the lower right hand corner, whether referring to the predominate color note to be used in this plate or not, is plainly discernible the word "Black." A reproduction is also given of a colored print from this plate taken from a published set to show, as much as it is possible to show in a greatly reduced reproduction by the half-tone process, the qualities referred to above.

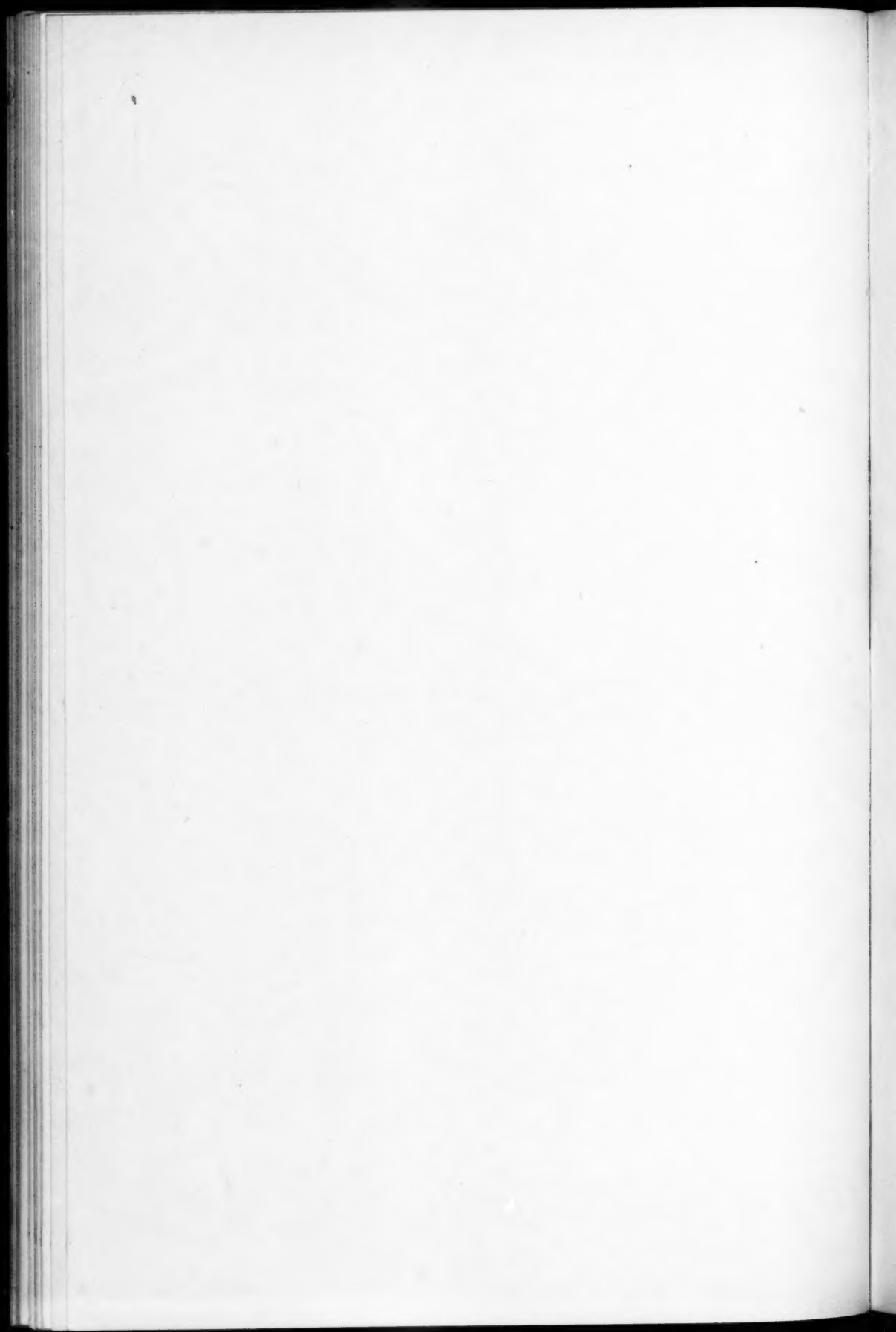
¹ Plate LVI	Red-shouldered Hawk.	Plate CCCI	Canvas Backed Duck.
" CXXXII	Three-toed Woodpecker.	" CCCII	Dusky Duck.
" CLVI	American Crow.	" CCCXX	Little Sandpiper.
" CCXVII	Louisiana Heron.	" CCCXCII	Louisiana Hawk.

Some critics have objected to a certain flatness in Audubon's drawings, but it is evident from a comparison of the two accompanying illustrations that a degree of the depth or rotundity attained in these plates by the engraver has perhaps been lost by the application of the flat color washes.

The method employed by Havell in executing his plates was that known as aquatinting, a very difficult, complicated, and tedious process. That he was thoroughly at home in this medium of expression and was excelled by but few, if any, aquatinters of his day is shown by the universal commendation of his work by competent art critics. The term "aquatint" refers of course to the biting of the copper plate with aqua-fortis, and not to the coloring of the print with water-color washes. Whatever of brilliance a print might possess, by virtue of the mastery of the engraver's technique, or whatever of freshness it might exhibit by being a first printing from a soft and rapidly deteriorating plate, is obviously more manifest in a proof fresh pulled and uncolored. And these are just the qualities that impart to the Havell proofs their chief charm — they recall Havell rather more than they do Audubon. Long familiarity with the published work does not prepare one for the impression conveyed by a first view of these proofs. The prodigious amount of work underlying the color and the amazing dexterity of the hand that accomplished it is revealed. It is like a look behind the scenes, a familiar glimpse that brings home the personal side of the great enterprise. A thrill of intimacy is experienced. Here, on a full sized, untrimmed sheet of the finest water-color paper made, is a trial impression from the lately completed engraving, once handled and closely inspected for defects and errors, as well as for improvements in style, by the be-aproned and acid stained Havell, and later owned and cherished by the gallant and demonstrative Audubon. A great relic! — perhaps unique. A magnificent example of a practically lost art.



FROM THE UNCOLORED PLATE.



THE BREEDING OF THE MIGRANT SHRIKE AT
HATLEY, STANSTEAD COUNTY, QUEBEC, 1916.¹

BY H. MOUSLEY.

THE Migrant Shrike (*Lanius ludovicianus migrans*) like the Prairie Horned Lark is an interesting species, and one which has increased in numbers ever since the clearing of the country, having invaded the eastern side of the continent principally, I suppose, from the Mississippi Valley. As to the exact date of its first breeding here, I cannot say, but some idea may be formed when we consider that it was first recorded as doing so in Maine in 1877, and in Vermont the same year, the latter state adjoining the County of Stanstead on the south, and the former not being more than thirty miles distant on the east at its nearest point.

As already indicated in my 'Five years notes and observations on the birds of Hatley' (Auk, Vol. XXXIII, 1916, pp. 57-73, 168-186), the species is by no means plentiful here, and until the present year I had only been able to locate two nests, and these some three miles or more away from Hatley. However, during the present year I have been fortunate in finding a pair breeding within half a mile south of Hatley Village, and under circumstances which I think are well worth recording. Now my previous earliest date of arrival here for the species was April 13, but on March 28 of the present year I saw an example quite close to my house, but it was not until towards the end of April that my youngest son reported having seen another on two or three occasions near the village and always about in the same locality. This set me thinking, and knowing the ways of shrikes I came to the conclusion that probably it was nesting not far off. With this in view I set off to inspect the locality on April 29, and soon found a shrike perched on the telephone wire, near a tall fir tree (the lower

¹ Read before the Nuttall Ornithological Club, Oct. 2, 1916, by Dr. Chas. W. Townsend for the Author.

branches of which had been cut off) which stood at the side of the road leading from Hatley to Stanstead village. There were a number of thorn and apple trees (the favorite nesting sites of these birds) scattered about over a rather large area, so I proceeded to examine each one carefully, but not a sign of a nest could I discover, or could I find the shrike again; and as it was about noon I returned home, deciding to visit the locality later on in the afternoon. On arrival, however, at the place no signs could be seen of any shrike, but on ascending some rising ground near the tall fir tree already mentioned, I put one up off the ground, and at once decided to follow it wherever it went. It was not long before this one was joined by another, and a pretty dance the pair led me the whole of that afternoon, further and further away from the site of the tall fir tree near which I had put the first bird up, so that at last I had to give up the game in disgust and return home. That they were nesting I felt sure and I got some little encouragement when on one occasion the female tried to dislodge several pieces of coarse grass that had got wedged in some brushwood, but failing to do so she finally desisted. However, to make up for it I got an insight into the affection of these birds for one another, for never on the whole of that afternoon were they very far apart, and on several occasions I saw the male feed his mate with what he no doubt considered some extra tid-bit. There was no chasing of any small birds or the spiking on thorns of the food they obtained (which was always off the ground, and consisted no doubt of beetles, grasshoppers and the like), everything was eaten. On my return home I was thoroughly puzzled, as I had examined every tree in the neighborhood except one, that tall fir tree! But there, I said to myself, shrikes do not usually nest in fir trees, and if they do, it would have to be above the average height in this particular one, as all the lower branches had been cut off as already mentioned. With this I went through all my text books, with the same result, every author except two giving apple trees or thorn bushes as the favorite site for the nest and the elevation a low one, usually from four to ten feet above the ground. The two exceptions mentioned above were Harold H. Bailey who in his 'The Birds of Virginia' 1913, p. 268, says from ten to thirty feet up, but gives no specific instance of a nest having

been found at such an extraordinary height as thirty feet; the other author being the late Ora W. Knight, who in his 'Birds of Maine' 1908, p. 471, gives a specific instance of a nest having been found near Bangor in May, 1896, in the forks of a balsam fir tree sixteen feet from the ground. After reading these two accounts the whole thing seemed to become perfectly clear, and I could see the nest in my mind's eye in that solitary fir tree by the roadside and at a great elevation too, and that no doubt was the reason why the birds kept leading me away from it in the afternoon. On the following morning I visited the site again and secreting myself, had the satisfaction, after waiting half an hour, of seeing one of the birds with building material enter a dense portion of the fir tree very near the top. This was on April 30, but it was not until May 10 that I climbed to the nest (which could not be seen from the ground) and found the female sitting on a set of five eggs, in a most beautiful and symmetrical nest, which was built in some forks close to the trunk, and at the record height of thirty-four feet above the ground. The foundation of the nest consisted of fir twigs, rootlets, string and that favorite material of most birds here, the stalks and flower heads of the pearly everlasting. The lining was formed of wool, plant down, and a good supply of feathers, and the dimensions were as follows, viz.: outside diameter 6, inside $2\frac{3}{4}$ inches; outside depth $4\frac{1}{2}$, inside $2\frac{1}{4}$ inches.

The eggs were finely and evenly spotted all over, the average size being $1.02 \times .73$, and these I took, more especially as I wanted to try and solve the problem as to why the birds had selected this abnormal site. Was it hereditary, or merely a case of environment? If the former, then the birds at their second venture ought by rights to select some equally high elevation, not necessarily in a fir, but in some other tree; but if the latter was the case then one of the apple trees or bushes close at hand ought to be used, as birds seldom or never build again in the same tree, directly after being robbed of their first set of eggs, and therefore would not make use of the fir tree again. Now it must be borne in mind that at the time of nesting the apple trees and bushes were not in leaf, but by accident in the midst of them there stood this solitary fir with excellent cover. Is it not reasonable then to suppose that the birds seeing this, took advantage of their environment, and

built in that fir in preference to the exposed and leafless apple trees and bushes?

At all events, this was the view I took of the matter at the time, and I think that after events will show that perhaps I may not have been so very far wrong. On the day following the taking of the eggs, I left home as I thought for about a week, but owing to unforeseen circumstances it was not until June 29 that I was able to visit the spot again, when on walking to the village of Hatley, and after having just passed the tall fir on the roadside, I heard a great commotion in some bushes and young trees not far off, and there sure enough were the five young Shrikes of the second brood, being fed by their parents, and just able to fly nicely. It took me only a few minutes to locate the nest in an apple tree eight feet up, and only eighty-five yards distant from the site of the first nest in the fir. And so matters had worked out as I had expected, and the birds had reverted to a natural elevation and site, which I feel sure would have been the case in the first instance, if it had not been for the excellent cover afforded by that accidental fir tree being on the ground that the birds had selected as eminently suitable for affording them their necessary food supply.

LABRADOR CHICKADEE (*PENTHESTES HUDSONICUS*
NIGRICANS) IN ITS RETURN FLIGHT FROM THE
FALL MIGRATION OF 1916.

BY HORACE W. WRIGHT.

THE extraordinary southward migration of *Penthestes hudsonicus nigricans* into New England and still farther south in the fall of 1916 was described with some detail in the issue of 'The Auk' for April, 1917. Almost all the individuals which had been noted in the vicinity of Boston had passed on by the middle of January. Mr. H. L. Barrett, however, recorded four remaining birds in the conifers of the Arnold Arboretum in the months of February, March, and April, his latest observation of these birds having been on April 19. Presumably, therefore, these four birds became winter residents, remaining from a flock of twelve birds noted in December. Other March records of *P. hudsonicus*, which have been furnished me, are those of one bird heard at Ipswich by Dr. C. W. Townsend and Dr. A. A. Allen on March 11, which was so elusive that by their best endeavors they were unable to get a glimpse of it; and one bird taken at Providence, R. I., by Mr. Harry S. Hathaway on March 18. This bird was sent to Dr. Townsend for identification and proved to be *nigricans*.

Some few, but definite data of the return flight of '*hudsonicus*' were obtained in May, when other northern breeding birds were appearing, such as Crossbill, Red-breasted Nuthatch, and northern nesting warblers. On May 4, as I passed through the centre of Belmont, the characteristic calls of two brown-capped Chickadees answering one another were heard in conifers on private grounds bordering the village street. I was not able to obtain a view of these birds, but their presence in trees of the village indicated that they were migrating. Again, on May 14, when I was in the Fresh Pond Reservation in Cambridge, four brown-capped Chickadees were seen in the deciduous trees of that portion known as Kingsley Park, occasionally flying out over the pond, but returning successively to the trees and giving their characteristic calls. These birds were in comparatively open park lands entirely removed

from such haunts as '*hudsonicus*' lives in and were without question migrating. While I was not able to ascertain the subspecific type in either of these cases, the presumption is that it was *nigricans*, since that was the type present in the fall and winter, as ascertained by Dr. Townsend,¹ which appeared in some abundance and moved on southward to Long Island, Staten Island, and New Jersey.

Mr. H. H. Cleaves writes me that one of the four Staten Island Labrador Chickadees learned to eat from one of his cocoanut feeders before starting north, the other three birds having left early, some time in January or early February.

Other May records of '*hudsonicus*' furnished me were these: two birds seen by Mr. Harold S. King with three Black-capped Chickadees at Waverley on May 6 [Townsend]; two birds seen in the Arnold Arboretum by H. L. Barrett on May 13; one bird seen by Mr. Francis H. Allen on his place at West Roxbury on May 18; one heard at Woodstock, Vermont, by Mr. Richard M. Marble on May 14. Mr. Allen writes, "I followed it [*hudsonicus*] about for some time, getting plenty of views of it, but none where I could compare the crown with the back to determine the subspecies. I had heard the bird — or another of the same kind — a few days before, but had not seen it." And Mr. Marble informs me that the lunch-counter-feeding brown-capped Chickadee at Woodstock, mention of which was made in my paper on Labrador Chickadee in 'The Auk' for April, 1917, a typical *littoralis*, disappeared about the first of April. So the May bird observed by him was presumably a migrant.

Mr. H. Mousley of Hatley, Province of Quebec, through Dr. Townsend furnishes exact testimony as to the subspecific type of the migrant birds found there. Dr. Townsend received two Labrador Chickadees in the flesh from Mr. Mousley taken by the latter at Hatley on May 14. Later he received another specimen of *nigricans* taken at the same place by Mr. Mousley on May 16. Dr. Townsend writes me, "On May 21 Mr. Mousley took three more 'typical *nigricans*' which he sent to the Victoria Memorial Museum at Ottawa." And subsequently Dr. Townsend wrote me, "Mr. Mousley took another ♂ *nigricans* at Hatley on May 30."

¹ Auk, vol. XXXIV, April, 1917, p. 160.

Mr. Mousley thus writes Dr. Townsend under date of May 28, 1917, "I have to-day heard from Ottawa that the three Labrador Chickadees have turned out to be one male and two females, so out of my six examples half are ♂'s and half ♀'s. I saw one more example on Sunday the 27th by "itself." This fact of sex equality in number leads Dr. Townsend to remark, "This would look as if the birds were paired and travelling together. I found the organs considerably enlarged."

The definite determination of the subspecific type of *hudsonicus*, taken at Hatley, P. Q., from the middle to the end of May, namely, as Labrador (*nigricans*), without variation, furnishes a fair basis for the presumption that the birds seen about Boston earlier in May, from the fourth to the eighteenth, were of the same subspecific type, and, appearing after an interval of absence, were individuals of the large fall migration of 1916 on their return flight north at the time of the migratory flight of other northern nesting birds. For such a succession of records of '*hudsonicus*' in May in this region, I think, has never been paralleled in the past. When *P. h. littoralis* has appeared, which has been quite infrequently, in the passing years, so far as records show, only a bird or two had been occasionally seen in the autumn until the migration of 1913, which was unprecedented.¹ Whether that was essentially a migration of *P. h. littoralis* or *nigricans* remains somewhat in doubt. Dr. Townsend has identified the bird taken by Mr. J. L. Peters at Harvard, Mass., on November 5, 1913, as a male of the *nigricans* type, and on the other hand one of the nine or more Belmont birds, taken on November 20, 1913, now in the Museum of Comparative Zoölogy, at Cambridge, as a female of the *littoralis* type. It was assumed at the time my paper was written to be a flight of *P. h. littoralis*, for the type *P. h. nigricans* had not then been established. But Dr. Townsend has now rendered the service of determining that the migration of 1916 was essentially that of *P. h. nigricans*. Since there was no similar May migration in 1914, following the large fall migration of '*hudsonicus*' in 1913, the birds disappearing by January or early February, may it be a fair assumption that the birds of the 1913 migration were for the most part of the more

¹ Auk, vol. XXXI, April, 1914, p. 236.

southern type *littoralis*, Acadian, while the late returning northward birds of the present season from the fall migration of 1916, as being farther north residents, would naturally be the Labrador birds, the *nigricans* type?

THE BIRDS OF WALLA WALLA AND COLUMBIA COUNTIES, SOUTHEASTERN WASHINGTON.¹

BY LEE RAYMOND DICE.

THE first definite knowledge of the vertebrate fauna of southeastern Washington was secured by J. K. Townsend (1839) and Thomas Nuttall, who, accompanying a trading expedition across the continent, reached, on September 3, 1834, the Hudson's Bay Company's post of Fort Walla Walla, situated on the Columbia River at the present site of Wallula. They remained here only a few days when they proceeded down the river to Astoria. The following year Townsend returned to Fort Walla Walla and remained in that region from July 6 until September 3.

In 1857 the United States government established Fort Walla Walla as an army post at the present site of Walla Walla. This is more than fifty miles from the former Hudson's Bay Company's post of the same name, and the fauna and flora of the two regions are somewhat dissimilar. Some uncertainty in scientific literature has been caused by the confusion of these two places.

Capt. Chas. Bendire was stationed at Walla Walla for several years, being there at least from August, 1879, until some time in 1881.

Belding (1890) has published a considerable number of brief notes from Walla Walla on birds observed by a person variously quoted as Dr. Williams, J. W. Williams, and once as D. T. Williams. These references probably refer to the same individual. From the

¹ Contribution from the Zoölogical Laboratory, Kansas State Agricultural College, No. 16.

notes given, this person must have studied the birds of the region during a period lasting at least from August, 1884, until the summer of 1885.

During the summer of 1903 a party from the State College, headed by R. E. Snodgrass, crossed the region. They entered at Wallula, proceeded to Walla Walla, then to Bolles, and up the Touchet River to Dayton. From Dayton they proceeded across the Blue Mountains toward Almota (Snodgrass, 1904).

W. Leon Dawson spent several weeks in April and May, 1907, studying the birds near Wallula.

It is known that collectors of the U. S. Biological Survey have worked at several points in the region, but no account of their work has been published, except isolated references to certain localities in taxonomical work.

Storrs H. Lyman of Dayton, Washington, who has made many observations on the birds of Walla Walla and Columbia counties, has kindly allowed the insertion of his notes into the present paper.

Through the courtesy of Dr. H. S. Brode, notes have been secured on the specimens in the collection of Whitman College.

Observations on the birds of this region were begun by the author in December, 1904, and, broken by numerous absences, continued until December, 1915. The vicinity along the Touchet River just east of Prescott has received much the largest share of attention, though field trips, often of several week's duration, have been made to other parts of the region. Specimens have been secured of a large number of the species, and care has been taken to have the taxonomic determinations as nearly correct as possible.

The general topographic features, climate, and habitats of Walla Walla and Columbia counties have been described in an earlier paper by the author (Dice, 1916, 293-332). Western Walla Walla County is dominated by semi-arid sagebrush plains; eastern Walla Walla County and western Columbia County are characterized by high rolling bunchgrass prairie; and in southeastern Columbia County the Blue Mountains are covered by coniferous forests. The wide range of climatic conditions is reflected in the vertebrate life of the different faunal areas.

In the accompanying list an attempt has been made to give the local distribution of each species, so far as known in the region;

and any new information at hand on habits has been included. The list is known to be very incomplete, especially in regard to the bird life of the Blue Mountains and of the sagebrush areas of western Walla Walla County.

***Aechmophorus occidentalis*.** WESTERN GREBE.—A juvenile was taken near Walla Walla a few years ago by S. H. Lyman.

***Mergus americanus*.** MERGANSER.—In early March, 1914, Mr. Bethel Randall took a young male from a small flock swimming in the Touchet River two miles east of Prescott.

***Anas platyrhynchos*.** MALLARD.—Numerous small flocks were observed along the Touchet River and in the grain and stubble fields of the valley near Prescott during late December, 1906. A male was noted Nov. 16, 1915, on the river.

***Mareca americana*.** BALDPATE.—Five were noted on a pool of the Touchet River two miles east of Prescott, Oct. 20, 1915.

***Nettion carolinense*.** GREEN-WINGED TEAL.—Irregularly present, during the winter, in small flocks along the Touchet River near Prescott.

***Spatula clypeata*.** SHOVELLER.—In 1915 a small flock was noted Aug. 23 on a gravel bar of the Touchet River two miles east of Prescott. Another flock of eleven was seen on the river Oct. 21.

***Charitonetta albeola*.** BUFFLE-HEAD.—Five were observed on the Touchet River two miles east of Prescott on Oct. 23, 1915.

***Olor columbianus*.** WHISTLING SWAN.—A mounted specimen at Whitman College is from the Walla Walla River near the Oregon line.

***Botaurus lentiginosus*.** BITTERN.—A specimen in the Whitman College collection was taken near Walla Walla on Nov. 18, 1901.

***Ardea herodias treganzai*.** TREGANZA'S BLUE HERON.—Occasional throughout the year along the shores of the Touchet River near Prescott. They sometimes alight in the upper branches of trees, and in winter are found also in the meadows and open grain fields of the valley.

***Grus mexicana*.** SANDHILL CRANE.—Rare in summer along the shores of the Touchet River near Prescott. Several large migrating flocks of cranes, probably of this species, were seen on April 14, 1908. They were flying very high and were going directly northward.

***Fulica americana*.** COOT.—On Aug. 14, 1914, one was seen on a small seepage lake near Attalia. They are reported by hunters to occur in the fall along the Touchet River near Prescott. Oct. 13, 1915, one was taken by Mr. Geo. Gross from a hawk in the Blue Mountains on the South Fork of the Touchet River.

***Gallinago delicata*.** WILSON'S SNIFE.—Reported by S. H. Lyman as sometimes common along Mill Creek near Walla Walla. A specimen from that locality is in the museum of Whitman College.

***Pisobia bairdi*.** BAIRD'S SANDPIPER.—Early in April, 1908, S. H. Lyman secured two from a small flock feeding in a grain field near Dayton (Dice, 1915, 60).

Totanus melanoleucus. GREATER YELLOW-LEGS.—Reported by S. H. Lyman to have been taken along the Touchet River at Dayton.

Bartramia longicauda. UPLAND PLOVER.—Dawson (1908, 484) heard Upland Plovers in April, 1905, near Two Rivers, western Walla Walla County.

Actitis macularia. SPOTTED SANDPIPER.—Often seen in summer on the bars of the Touchet River near Prescott. One was seen on the rocky shore of Snake River at Lyon's Ferry on June 23, 1914.

Spring arrival records for Prescott are: May 2, 1905; May 22, 1913; and May 19, 1914.

Numenius americanus. LONG-BILLED CURLEW.—Occasionally breeding in the bunchgrass hills near Prescott. They are rapidly decreasing in numbers, as the spring plowing practiced in connection with wheat growing destroys many of their nests, and only a small amount of uncultivated land, on which they can breed, still remains in the region. In spring they often feed about small pools of water in the prairie, but they seldom go near the river during their stay with us. They leave the region soon after the young are able to fly and thus escape the dry summer. Nesting occurs in the latter part of April and the early part of May.

Spring arrival dates at Prescott are: March 23, 1905; March 29, 1906; April 7, 1908; and April 9, 1913.

Charadrius dominicus dominicus. GOLDEN PLOVER.—Taken by Bendire at Walla Walla (Brewster, 1882, 227).

Oxyechus vociferus vociferus. KILLDEER.—Numerous along the shores of the Walla Walla River near Wallula in the early part of June, 1914. They also fed in the sagebrush, sometimes a half mile from the river. Killdeers are fairly numerous in summer along the shores of the Touchet River near Prescott. They often feed in the cultivated meadows of the valley, and at times, especially in the spring, may be found in the grain fields and bunchgrass areas a short distance from the river.

During late December, 1908, several were noted near Prescott and one was taken on Jan. 1, 1909. Spring arrival dates for other years are: Feb. 26, 1905; Feb. 22, 1906; and Feb. 25, 1908.

Perdix perdix. HUNGARIAN PARTRIDGE.—In the early spring of 1915 several were liberated in the Touchet Valley near Prescott. A flock of ten was seen in a field of the valley near some willows on Nov. 20. They had been introduced into Columbia County several years earlier.

Colinus virginianus virginianus. BOB-WHITE.—Introduced. A few were seen in early June, 1914, at the edge of the willows along the Walla Walla River near Wallula. At Prescott they have become common in the brush and timber. At times they feed in the meadows and even a short distance out into the open parts of the valley, but are never found far from cover.

Nests have been noted at Prescott as follows: June 5, 1908, 14 eggs; June 8, 1908, 10 eggs; July 1, 1910, 20 eggs; June 5, 1913, 19 eggs at the point of hatching. These nests were placed in grass at the edge of meadows or in brushy places.

***Dendragapus obscurus richardsoni*.** RICHARDSON'S GROUSE.—A specimen from the Blue Mountains is in the collection of Whitman College. In late July, 1914, they were noted at Hompeg Falls in yellow pine, in western larch, in Douglas spruce, and in lowland fir, being most common in the Douglas spruce. On July 27 a flock was seen in alpine fir on a ridge near Twin Buttes Ranger Station, and others were seen in Douglas spruce on other parts of the same ridge. Several were seen on August 6 beside Butte Creek.

***Bonasa umbellus togata*.** CANADIAN RUFFED GROUSE.—Rather rare near Prescott, and found only in the densest timber and brush. One was seen July 26, 1914, in lowland fir forest at Hompeg Falls.

On June 13, 1908, a hen with a brood of small young was discovered in thick brush two miles east of Prescott.

***Pediocetes phasianellus columbianus*.** COLUMBIAN SHARP-TAILED GROUSE.—Reported by Townsend (1839) from near Wallula. A number were seen June 17, 1914, in the grain fields and in the bunchgrass areas near Eureka. They were formerly abundant in the bunchgrass hills near Prescott, but spring plowing destroys many of their nests and this in connection with extensive hunting has greatly reduced their numbers. They sometimes feed on the buds of the trees along the stream in winter, but are very seldom seen near timber in the summer.

A nest found in a stubble field near Prescott on May 9, 1906, was merely a slight depression in the ground lined with a little straw and a few feathers. It contained 12 eggs. Young only a few days old were seen on May 14, 1914. Quarter-grown young were seen on June 30. In many cases the mother will feign injury in an attempt to lead an enemy away from the vicinity of the chicks. In one case the mother made a series of motions and calls tending to direct the attention to herself and away from the chicks. The young hide in the grass, and may sneak away a considerable distance. They are very hard to find unless they give their calls, and this they rarely do until the hen begins to call them.

***Centrocercus urophasianus*.** SAGE HEN.—Snodgrass (1904, 227) reported the sage hen to "occur throughout the entire sagebrush area of central Washington."

***Phasianus torquatus*.** RING-NECKED PHEASANT.—Introduced into southeastern Washington. They are reported from time to time in the timber along the Touchet River above Prescott. One was seen Aug. 13, 1914, in a grain field near Walla Walla.

***Zenaidura macroura marginella*.** WESTERN MOURNING DOVE.—Near Wallula several were seen in early June, 1914, at the edge of the willows along the Walla Walla River, and a few were noted in sagebrush, some being nearly a mile from the river. They are common during the summer in partially open places in the Touchet Valley near Prescott, and nest in bushes and trees along the river. They feed mostly on the ground at the edge of timber, but may sometimes be found several miles from trees or water. At Lyon's Ferry a few were seen in late June, 1914, about the

rock cliffs overlooking Snake River. They are common in summer at Walla Walla (Belding, 1890, 23).

Spring arrival dates at Prescott are: April 30, 1905; April 2, 1906; March 24, 1908; and April 24, 1913. Five were seen at Prescott on Dec. 25, 1908, so an occasional winter must be spent at that locality.

Cathartes aura septentrionalis. TURKEY VULTURE.—A flock of twelve were seen Aug. 31, 1915, by Carl Dice on a hill east of Prescott. On Sept. 5, he saw another in the trees of the valley. S. H. Lyman reports them from the Blue Mountains.

Accipiter velox. SHARP-SHINNED HAWK.—Common in the timber along the Touchet River at Prescott and Dayton. Dates of capture at Prescott are Jan. 1, 1905; Dec. 21, 1908; Oct. 24, 1915; and Nov. 13, 1915.

Accipiter cooperi. COOPER'S HAWK.—One was shot Sept. 13, 1915, in the timber along the Touchet River near Prescott. S. H. Lyman reports them to be common near Dayton.

Astur atricapillus striatulus. WESTERN GOSHAWK.—Specimens have been taken at Walla Walla (Brewster, 1882, 232). One was shot Sept. 13, 1915, in the timber just east of Prescott while feeding on a young Bob-white. Bendire (1892, 199) says they are pretty generally distributed throughout the Blue Mountains of Oregon and Washington.

Buteo borealis calurus. WESTERN RED-TAIL.—Common over the whole of southeastern Washington. In the region near Prescott they occur throughout the year, but are more common in summer than in winter. They are found in the bunchgrass hills and also in the timber along the streams. In the summer of 1914 a number were seen on the ridges of the Blue Mountains.

On June 20–24, 1914, several pairs were seen about the lava cliffs beside Snake River at Lyon's Ferry. High on one of the cliffs a nest containing two well grown young was observed.

A pocket gopher (*Thomomys columbianus*) was found in the stomach of one taken near Prescott on Dec. 22, 1905.

Buteo swainsoni. SWAINSON'S HAWK.—Occasionally seen in summer near Prescott, in the bunchgrass hills, in the timber of the valleys, and in irrigated meadows. During the latter part of August, 1915, flocks of one hundred or more were observed soaring over the valley in the evenings. One was taken as late as Oct. 16.

Archibuteo lagopus sancti-johannis. AMERICAN ROUGH-LEG.—Taken near Walla Walla by Bendire (Brewster, 1882, 227).

Archibuteo ferrugineus. FERRUGINOUS ROUGH-LEG.—Several rough-legs were seen on June 17, 1914, in the bunchgrass hills near Nine-mile. Another was seen June 25 in the bunchgrass hills about fifteen miles north of Prescott.

Aquila chrysaetos. GOLDEN EAGLE.—Reported by S. H. Lyman to occur commonly in Columbia County. A mounted specimen from that county is in the museum of Whitman College.

Falco mexicanus. PRAIRIE FALCON.—Reported by Dawson and

Bolles (1909, 525), from the canyon of Snake River and from the gorge of the Columbia below Wallula. Bendire (1892, 289-290) found them somewhat common in timber and prairie at Walla Walla in late summer, fall, and spring, and rarely in winter. During the late fall of 1915, up until Nov. 7, one was often noted on power line poles in an open field east of Prescott.

Falco columbarius columbarius. PIGEON HAWK.—Those taken at Walla Walla have been referred to three different subspecies (Bendire, 1892, 303). However, it seems better to place them all under one subspecies until the taxonomy of the group is better known.

They were of "not uncommon" occurrence at Walla Walla in the winter of 1880-1881 (Allen, 1881, 128).

Falco sparverius sparverius. SPARROW HAWK.—Generally distributed throughout southeastern Washington. One was killed on June 17, 1914, in sagebrush near Wallula not far from the Walla Walla River. In the prairie area they are common in the timber along the streams, but they often hunt in the bunchgrass hills, being found sometimes several miles from timber. At Lyon's Ferry several pairs were seen in late June, 1914, about basaltic cliffs. A number were seen in late July, 1914, on the open rocky slopes and in open yellow pine timber near Hompeg Falls. One was killed August 9, in open Douglas spruce timber on top of a mountain ridge.

Several remained throughout the winter of 1905-06 in the Touchet Valley near Prescott. Spring arrival dates for other years are: April 3, 1908; and April 9, 1913.

A nest was found, April 23, 1906, in an old magpie nest about twelve feet high in an osage hedge two miles east of Prescott. There were no eggs at that time, but later five were laid. During early June, 1908, another pair nested in a deserted magpie nest. At other times Sparrow Hawks were seen to enter and leave old woodpecker holes high in the cottonwood trees, and they evidently nested there.

Pandion haliaëtus carolinensis. OSPREY.—S. H. Lyman reports the killing of one beside the Touchet River in the city of Dayton. On May 17, 1913, one was perched in a high tree overlooking the Touchet River near Prescott. At this place one was killed on Sept. 21, 1915.

Asio wilsonianus. LONG-EARED OWL.—A few live throughout the year in the timber along the streams of Walla Walla County. None are found except in heavy brush or timber.

A nest in a broken-down magpie nest twelve feet above the ground, was found in 1906 in thick brush along the Touchet River near Prescott. No eggs had been laid on April 23, but on April 27 the nest contained two. On April 24, 1908, another Long-eared Owl was seen on a deserted magpie nest thirty feet above the ground. Dawson (1914, 56-57) reports finding a nest near Wallula.

Asio flammeus. SHORT-EARED OWL.—On June 13, 1914, one was flushed from the ground in sagebrush near Wallula. He sailed off and

alighted on a hill covered by bunchgrass. Near Prescott they have been seen a few times in the bunchgrass hills. Specimens were taken by Bendire at Walla Walla (Brewster, 1882, 229). S. H. Lyman has noted the species in both Walla Walla and Columbia Counties.

Scotiaptex nebulosa nebulosa. GREAT GRAY OWL.—A specimen taken in Columbia County 15 or 20 miles east of Dayton was brought to S. H. Lyman early in December, 1914.

Cryptoglaux acadica acadica. SAW-WHET OWL.—One was taken Nov. 19, 1915, in timber two miles east of Prescott. S. H. Lyman has heard their call notes a number of times in the Blue Mountains. Early in December, 1914, he took a specimen at an old barn on the outskirts of Dayton.

Otus asio macfarlanei. MACFARLANE'S SCREECH OWL.—Noted at Wallula (Dawson and Bolles, 1909, 475). Breeding at Walla Walla (Bendire, 1892, 372). They occur commonly throughout the year in the timber along the Touchet River at Prescott. In late July, 1914, a family party, of which the young were nearly grown, inhabited the lowland fir forest near Hompeg Falls.

Bubo virginianus lagophonus. NORTHWESTERN HORNED OWL.—Type (Oberholser, 1904, 185-187) from Walla Walla, taken on Nov. 13, 1881. Oberholser states (p. 186) that in this form, so far as shown by the material at hand, there is no indication of a pale phase. Of 18 specimens taken by Bendire (1892, 388) at Walla Walla 12 were dark in color and were referred to *B. v. saturatus*, 3 were intermediate, and 3 being light in color were referred to *B. v. subarcticus* (Hoy). *B. v. saturatus* as given by Bendire (1892, 383) is evidently a synonym of *lagophonus* (Ridgway, 1914, 748). It seems that as *lagophonus* does not have a pale phase, two forms of horned owl must occur at Walla Walla.

Bendire (p. 388) reports *saturatus* (*lagophonus*) common near Walla Walla in winter, but states that they were not seen after the approach of spring. In some winters horned owls are numerous in the timber along the Touchet River near Prescott.

Bubo virginianus occidentalis. WESTERN HORNED OWL.—The horned owl breeding at Walla Walla is given by Bendire (1892, 388) as *B. v. subarcticus*. This name is given by Ridgway (1914, 744) as a synonym in part of *occidentalis*, and this must be the subspecies breeding in Walla Walla County.

Near Prescott horned owls are rarely seen in summer. Throughout the year they keep to the heavy brush and timber along the rivers.

Nyctea nyctea. SNOWY OWL.—Bendire (1892, 390) took two Snowy Owls at Walla Walla in winter. S. H. Lyman reports that he has seen the species near Dayton in very cold weather.

Speotyto cunicularia hypogæa. BURROWING OWL.—In June, 1914, a pair had a nest in sagebrush beside an irrigating ditch near Wallula. Reported from Walla Walla (Bendire, 1892, 400). Near Prescott they are numerous in summer in the bunchgrass areas.

Spring arrival dates at Prescott are: March 19, 1905; April 3, 1908; and April 11, 1913.

Glaucidium gnoma californicum. CALIFORNIA PYGMY OWL.—Bendire (1888a, 367) took this owl in the Blue Mountains of Washington. S. H. Lyman killed one at an old barn near Dayton in December, 1914. A specimen in the Whitman College collection was taken Feb. 13, 1902, at Dayton.

Streptoceryle alcyon caurina. WESTERN BELTED KINGFISHER.—Numerous in summer along the Touchet River near Prescott. They are often seen perched on trees overlooking the stream. On Aug. 4, 1914, one was seen on Butte Creek in the Blue Mountains. During the winter of 1904-05 several remained near Prescott all winter. In 1913 the first spring arrival was noted on March 31. A nest hole was discovered in the soft dirt banks of the Touchet River near Prescott on May 19, 1914.

Dryobates villosus monticola. ROCKY MOUNTAIN HAIRY WOODPECKER.—Occasional in winter in the trees along the Touchet River near Prescott. In the summer of 1914 a number were seen on the ridges of the Blue Mountains in alpine fir forest and elsewhere on dead trees.

Dryobates pubescens homorus. BATCHELDER'S WOODPECKER.—Numerous throughout the year in the timber along the Touchet River near Prescott. Reported rare at Walla Walla (Bendire, 1895, 59).

On June 11, 1908, a nest containing young was found four feet above the ground in an apple tree near Prescott. The female was seen gathering large, red aphids from nearby golden-rod. She would gather all her mouth could hold and until the aphids stuck out like a fringe all around the edges of the bill. Then she flew in a direct line toward the nest. This female was also seen to gather aphids from apple trees.

Xenopicus albolarvatus. WHITE-HEADED WOODPECKER.—Mr. George Gross shot one in the Blue Mountains late in May, 1909, and sent me the specimen.

Picoides arcticus. ARCTIC THREE-TOED WOODPECKER.—S. H. Lyman secured a male about five years ago in heavy Douglas spruce on a ridge of the Blue Mountains. The specimen is now in his collection.

Picoides americanus subsp. THREE-TOED WOODPECKER.—A white-backed, Three-toed Woodpecker was seen July 31, 1914, in heavy Douglas spruce forest near the top of a ridge near Twin Buttes R. S. S. H. Lyman reports the species to be common in these mountains.

Sphyrapicus varius nuchalis. RED-NAPED SAPSUCKER.—Found sparingly in the Blue Mountains of Washington by Bendire (1888, 226).

Sphyrapicus thyroideus. WILLIAMSON'S SAPSUCKER.—Noted a number of times in the Blue Mountains in the summer of 1914. Near Hompeg Falls they were found in lowland fir in the canyon, and in yellow pine forest on the low ridges. On top of the ridge at Twin Buttes R. S. they were seen in Douglas spruce forest, and on Butte Creek they were found in brush and among cottonwoods.

Phlœotomus pileatus picinus. WESTERN PILEATED WOODPECKER.—Several were reported to have been present for about a month in Sept.—

Oct., 1914, in trees along the Touchet River east of Prescott. Near Hompeg Falls they were noted a few times during July, 1914, in low-land fir forest, and two were seen in western larch forest.

Asyndesmus lewisi. LEWIS'S WOODPECKER.— Abundant in summer near Prescott. They live principally in the timber, but may often be found on fence posts in the bunchgrass and grain fields several miles from trees. None were seen along the Touchet River below Lamar, nor were any seen in the Blue Mountains. Reported breeding at Walla Walla (Bendire, 1895, 120).

Spring arrival dates at Prescott are: April 29, 1905; April 26, 1908; and April 29, 1913. In 1915 the species was last seen on Sept. 18. Several nests containing vociferous young were noted in the early part of June, 1908, high in cottonwood trees near Prescott. On May 21, 1914, a nest was found about twelve feet high in a catalpa.

These woodpeckers are very fond of cherries and may often be seen feeding on the ripe fruit. When cherries are ripe a constant stream of birds may be seen carrying them in their bills to the young in nearby nests.

Colaptes cafer collaris. RED-SHAFTED FLICKER.— A number were seen in early June, 1914, in the willows along the Walla Walla River near Wallula. In the timber along the streams of the prairie area they are common in summer. They often fly considerable distances out into the bunchgrass hills and feed on the ground. On the ridges of the Blue Mountains they were numerous during the summer of 1914 in buckbrush, alpine fir forest, and Douglas spruce forest, being most often noted on dead trees. A few were seen in the deciduous timber along Butte Creek.

A few flickers remain at Prescott during the winter. During the winter of 1908 one roosted every night at a certain place under the porch of a ranch building.

Mating behavior was noticed as early as February 29, in 1905. A nest, about twelve feet high in a catalpa tree, two miles east of Prescott, on May 7, 1908, contained six eggs. This nest had been used by flickers for at least two previous seasons.

Chordeiles virginianus hesperis. PACIFIC NIGHTHAWK.— Common near Wallula in early June, 1914. They were often seen flying over sagebrush and occasionally over the Walla Walla River or over the willows along the stream. They often alight on the ground or on fence posts in the sagebrush. Near Prescott a few have been observed in flight over the bunchgrass hills, over the Touchet River, and over the timber along the stream. At Lyon's Ferry a number were seen in the evenings of late June, 1914, flying over Snake River. In the late summer of 1914 a few were seen flying over Butte Creek and over the highest ridges of the Blue Mountains.

Chætura vauxi. VAUX'S SWIFT.— S. H. Lyman has seen this swift in the region on two occasions, once finding a specimen dead in Dayton.

Archilochus alexandri. BLACK-CHINNED HUMMINGBIRD.— Common summer resident in the timber along the Touchet River near Prescott.

Selasphorus rufus. RUFOUS HUMMINGBIRD.— Numbers occur in the

timber along the Touchet River at Prescott. Two young fully able to fly were noted on Aug. 11, 1915. The species was last seen on Aug. 24.

Stellula calliope. CALLIOPE HUMMINGBIRD.—A juvenile was taken Aug. 6, 1914, in brush along Butte Creek.

Tyrannus tyrannus. EASTERN KINGBIRD.—A few were seen in early June, 1914, in the willows along the Walla Walla River near Wallula. Near Prescott and Walla Walla they are common in summer, but are not so abundant as the western kingbird. They are most abundant at the edges of timber, in orchards, and in the shade trees about isolated farm buildings, but are often found on fence posts in the bunchgrass considerable distance from trees. On Eureka Flat they were numerous in the early part of June, 1914, several miles from the nearest timber.

One nest was found July 13, 1909, and another on June 26, 1914, both on a small bridge over the Touchet River near Prescott. In 1915 they were last noted in this region on Sept. 1.

Tyrannus verticalis. WESTERN KINGBIRD.—In early June, 1914, numerous pairs were observed near Wallula and they were numerous on Eureka Flat. They are abundant in summer near Prescott. They are not usually found in heavy timber, but prefer open woods or places where there are only a few trees. A favorite place is in the shade trees about farm buildings. Sometimes they are found in the bunchgrass hills far away from buildings or trees.

Spring arrival dates at Prescott are: April 30, 1905; April 26, 1908; and April 21, 1913. In 1915 they were last noted on Aug. 22.

On June 12, 1914, one was seen brooding a nest on a hay derrick near Wallula, and remained on the nest even when the derrick was in use. Near Prescott they nest commonly in trees and about barns. On May 7, 1908, a nest in process of construction was found in a locust tree. On May 13, 1908, a completed nest was observed in a barn in the bunchgrass hills southwest of Prescott. June 12, 1914, a nest was seen on a rocky cliff at Lyon's Ferry. In the foothills of the Blue Mountains, southeast of Waitsburg, a nest was noted on a fence post in bunchgrass. They also breed at Walla Walla (Bendire, 1895, 248).

The Western Kingbird is very pugnacious and fearless and will attack any animal which ventures near the nest. In the bunchgrass country, where nesting sites are scarce, they will make use of any sort of a small box nailed up for their use. If they can be induced to nest near a poultry yard, hawks and magpies are effectively kept away.

Sayornis sayus. SAY'S PHOEBE.—Reported from Walla Walla (Bendire, 1895, 277). One was seen June 17, 1914, in bunchgrass on the hills near Nine-mile. They are common in summer in the neighborhood of Prescott. At Lyon's Ferry one was seen June 23, 1914. Their preference is for open country with a few trees, and they are seldom found in heavy timber. Sometimes they are found a mile or more from trees. In the bunchgrass hills they are often found about farm buildings.

March 8, 1905, and March 9, 1908, are spring arrival dates at Prescott,

but these records are probably not of the earliest arrivals, for the Say Phoebe is one of the first birds to arrive in spring.

On May 5, 1908, a nest with four partially fledged young was found inside an old house near Prescott. The nest was placed on a ledge above a closed window. The bird entered the house through an open window and crossed two rooms to reach the nest. On June 19 a second brood was found in this nest. One of the first brood was found dead in the room, but the other three had probably been able to get out through the open window. June 24, 1910, a nest containing young was found in the same building, but in a different room, which the bird entered through an open screen door. On May 16, 1908, a nest was found on a beam in a dirt cellar in the hills near Prescott. All the nests were low and broad and included horse-hairs and bits of cloth in their construction.

Nuttallornis borealis. OLIVE-SIDED FLYCATCHER.—One was collected Sept. 17, 1909, from the top of a high tree near Prescott. Others were seen in an orchard on Aug. 7, and Sept. 5, 1915. A specimen in the Whitman College collection was taken at Dayton on Aug. 24, 1900.

Myiochanes richardsoni richardsoni. WESTERN WOOD PEWEE.—Common in the orchards and timber of the Touchet Valley near Prescott. In 1915 they were last seen on Aug. 27.

Empidonax difficilis difficilis. WESTERN FLYCATCHER.—Reported by Snodgrass (1904, 229) to occur along the Walla Walla River and on the Touchet River. On August 6, 1914, one was shot from a flock of juveniles in heavy brush along Butte Creek in the Blue Mountains.

Empidonax trailli trailli. TRAILL'S FLYCATCHER.—Characteristic of open brush and willow patches in the Touchet Valley east of Prescott. Specimens were taken on June 18, 1908, and June 27, 1914. In 1915 they were still present on Aug. 22.

Empidonax hammondi. HAMMOND'S FLYCATCHER.—A juvenile was taken in lowland fir forest near Hompeg Falls on July 26, 1914.

Empidonax wrighti. WRIGHT'S FLYCATCHER.—A number were seen in the trees beside the Touchet River near Prescott on May 18, 1913, and one specimen taken. In late July, 1914, old and young were numerous in open places of the lowland fir forest at Hompeg Falls. One specimen was taken on July 23, and on July 24 another was taken in brush on the side of the canyon.

(To be concluded.)

A REVISION OF THE RACES OF TOXOSTOMA
REDIVIVUM (GAMBEL).

BY HARRY C. OBERHOLSER.

FOUR forms of *Toxostoma redivivum* have been described, but at present only one is generally recognized. Both Mr. Robert Ridgway and the writer have hitherto failed to distinguish more than a single race, which we have considered coextensive with the species; but this failure now proves to have been due to lack of proper material. Dr. Joseph Grinnell, however, has recently allowed three subspecies in California.¹ The identification of newly collected material in the Biological Survey has led me to a reëxamination of the entire species. For this purpose a very satisfactory number of specimens has been available, altogether 385, including the type and type series of *Toxostoma redivivum sonoma* Grinnell, also the types of *Toxostoma redivivum redivivum*, *Toxostoma redivivum pasadenense*, and *Toxostoma redivivum helvum*. For the use of these and much additional material the writer is under obligation to the authorities of the United States National Museum, the Academy of Natural Sciences of Philadelphia, the American Museum of Natural History, and the Museum of Comparative Zoölogy; to Mr. John E. Thayer, Mr. William Brewster, Mr. A. C. Bent, Dr. Joseph Grinnell, Dr. J. Dwight, and Dr. L. B. Bishop. With these advantages it is now possible to recognize, instead of a single form, three fairly well defined geographic races, which are explained in the following paragraphs:

***Toxostoma redivivum redivivum* (Gambel).**

Harpes rediviva GAMBEL, Proc. Acad. Nat. Sci. Phila., II, No. 10, August, 1845, p. 264 (near Monterey, California).

Harporhynchus redivivus pasadenensis GRINNELL, Auk, XV, No. 3, July, 1898, p. 237 (Pasadena, California).

¹ Pacific Coast Avifauna, No. 11, October 21, 1915, pp. 154-155; 'The Auk,' XXXIV, No. 4, October, 1917, pp. 427-433.

CHARS. SUBSP.—Brown of upper parts decidedly grayish; white of throat with little or no tinge of buffy; brown jugular band dark and grayish; buffy ochraceous of posterior lower parts pale.

MEASUREMENTS.—Male:¹ wing, 94–106.5 (average, 100.6) mm.; tail, 117–138 (128.1); exposed culmen, 32–39 (36.2); tarsus, 36.5–40 (38.1); middle toe without claw, 22–26 (24.3).

Female:² wing, 93–105.5 (average, 98.9) mm.; tail, 124–130 (126.9); exposed culmen, 33.5–39 (36.1); tarsus, 35.5–39 (37.2); middle toe without claw, 22.5–25.5 (23.8).

TYPE LOCALITY.—Near Monterey, California.

GEOGRAPHIC DISTRIBUTION.—Central northern Lower California, and southern California excepting the southeastern part and the coast region north of Monterey Bay. Resident in the Upper Austral and to some extent the Lower Austral zones, north to Amador (Amador County) in California, Sacramento, and Grafton (northeastern Yolo County); west to Brentwood (Contra Costa County), Monterey, Santa Barbara, Laguna Beach (Orange County), San Diego, and the Mexican Boundary Line at the Pacific Ocean; south to extreme southwestern San Diego County, Campo, and Cameron Ranch (San Diego County) in California, and Hanson Laguna, Lower California; east to Jacumba (southwestern Imperial County) in California, Palm Springs (Riverside County), Hesperia (San Bernardino County), Piute Mountains (Kern County), Weldon (Kern County), East Fork of Kaweah River about 10 miles west of Mineral King (Tulare County), Fresno Flat (Madera County), Coulterville, and Murphy (Calaveras County).

Remarks.—The subspecific separation of the birds of this species living in southern California from those inhabiting the coast region north of Monterey Bay was first made by Dr. Joseph Grinnell.³ From our present investigations it is evident that this distinction is easily maintainable, although it must be noted that none of the characters are wholly constant, on account of the great amount of individual variation in both races. Birds in juvenal plumage are, furthermore, almost as readily distinguishable as those in the adult stage; the juveniles of the present form being decidedly less ochraceous on the under parts and somewhat less rufescent above than the young of *Toxostoma redivivum sonomae*.

¹ Ten specimens, from California.

² Ten specimens, from California.

³ *Harporhynchus redivivus pasadenensis* Grinnell, Auk, XV, No. 3, July, 1898, p. 237 (Pasadena, California).

Dr. Grinnell, in describing his *Harporynchus redivivus pasadenensis*, considered that the bird inhabiting the southern side of Monterey Bay, including the type locality of *Toxostoma redivivum redivivum*, was the same as that of the southern shore of San Francisco Bay, and thus, by inclusion of the type, made the northern bird the typical race. A recent careful examination of Gambel's type of *Harpes rediviva*, which is now in the Academy of Natural Sciences at Philadelphia, shows that this arrangement apparently needs revision. This type is an old specimen, which was for a long time mounted and thus exposed to the light, and has consequently become somewhat discolored, particularly on the upper parts. Except for its more brownish upper surface, which is apparently due to this discoloration, it is in all respects readily matched by many of our large series of birds from southern California; and although it shows a slight vergence toward the northern race, its whitish throat, dark breast, and pale under parts leave no doubt of its correct identification with the race from southern California, called by Dr. Grinnell *Harporynchus redivivus pasadenensis*. This identification of Gambel's type specimen is fortified by a series of adult and young birds from Seaside, California, which is situated on the southeastern shore of Monterey Bay but a short distance east of Monterey. These examples, while showing a slight inclination toward the northern subspecies, are very much nearer the southern form. It is evident, therefore, that the name *Toxostoma redivivum redivivum* must be transferred to the southern race, to displace *Toxostoma redivivum pasadenense* (Grinnell), while another name must be found for the bird now known as *Toxostoma redivivum redivivum*. Adult specimens from Paso Robles, in San Luis Obispo County, and from Jolon, in Monterey County, are also clearly referable to this race, since they are not distinguishable from many southern California specimens. The same remarks are applicable to our juvenal examples from Paraiso Springs in Monterey County. Birds from Chinese in Calaveras County, Brentwood in northeastern Contra Costa County, and Amador in Amador County, vary slightly toward the northern subspecies, *Toxostoma redivivum sonomae*, but belong clearly to the present form. A series of both juvenal and adult birds from Campo, Jacumba, Cameron Ranch, and Pine Valley,

all these localities situated along the Mexican border of southern California, are in characters about half way between *Toxostoma redivivum redivivum* and *Toxostoma redivivum helvum* of Lower California, but on the whole seem to be rather nearer the California race. A single adult in fresh plumage from Chulavista, in southwestern San Diego County, California, and a large series from Witch Creek, California, are more clearly referable here.

One hundred and seventy-five specimens of this race have been examined, from the following localities:

California.—Seaside, Monterey County (June 26, 28, 29, and 30, 1909); Santa Paula (April 8, 1880); Paso Robles, San Luis Obispo County (Sept. 2, 1902); Los Alamos, Santa Barbara County (Nov. 4, 1884); Pasadena (Jan. 15, 1909; Feb. 6, 1897; Sept. 5, 1909; Dec. 26, 1896); Whitewater, Riverside County (Sept. 12, 1907) Jolon, Monterey County (Oct. 4, 1884); San Gabriel Wash, Los Angeles County (Oct. 17, 1915); Heninger Flats, San Gabriel Mountains (July 4 and 8, 1905); San Fernando (Nov. 3 and 13, 1902; Oct. 29, 1915); Placerita Canyon, Los Angeles County (Nov. 28, 1915; Dec. 10, 1915); Stanley, Kings County (June 30, 1907; July 1, 1907); Saticoy (Feb. —, 1872); Chinese, Calaveras County (Sept. 26, 1901); Fullerton, Orange County (Nov. 15, 1900); Amador (April 26, 1896); Brentwood, Contra Costa County (Dec. 21, 1907); Kernville (July 11, 1891); Santa Barbara (Jan. 10, 1875); Fort Tejon; Raymond, Madera County (June 29, 1904); Palm Springs, Riverside County (June 11, 1907); Paraiso Springs, Monterey County (April 16, 1881; July 19, 1902); Grafton, northeastern Yolo County (1877; July 28, 1906); Eshom Valley, Tulare County (August 29, 1907); 4 miles east of Cuyama Ranch, Cuyama Valley, San Luis Obispo County (June 27, 1916); Los Angeles (May 10, 1915); Jacumba, Imperial County (Feb. 9, 1903; May 19, 21, and 22, 1894); Witch Creek, San Diego County (Jan. 7, 1908; Jan. 2, 1907; Jan., 1893; Jan. 14, 1904; Feb. 1, 1904; May 7, 1904; July 22 and 28, 1911; July 14 and 26, 1904; August 1, 2, 4, and 23, 1911; August 8, 10, 18, 19, 22, and 26, 1904; August 9, 1913; August 12 and 20, 1912; Sept. 2, 1911; Sept. 26, 1913; Oct. 11, 12, 13, 17, and 27, 1906; Nov. 20, 1903; Nov. 20, 1906; Nov. 24, 1904; Dec. 13, 1909; Dec. 30, 1904); San Diego (Feb. 5, —; Feb. 18, 1893; March 2, 1894; spring, 1874; April

20, 26, and 28, 1894; May 3, 7, and 17, 1894; Dec. 17, 1884; Dec. 22, 1906); Riverside (Jan. 6, 1887; Jan. 19 and 28, 1888; March 19, 1887; April 5, 1887; May 7 and 8, 1887; Sept. 10, 14, and 28, 1881; Sept. 27, 1888; Oct. 6, 1883); Escondido (June 16, 1897); Sacramento; Santa Ysabel (Dec. 25, 1892); Paicines, San Benito County (June 14, 1903); San Bernardino (March 30, 1882; Jan. 18, 1884; Sept. 10, 1888; April 26, 1882); San Bernardino Valley (Oct. 2 and 6, 1893); San Bernardino County (Dec. 25, 1877); Lankershim, San Fernando Valley, Los Angeles County (Jan. 30, 1917); Los Nogales, San Fernando Valley, Los Angeles County (Feb. 9, 1917; May 16, 1917); Redlands (Feb. 13 and 25, 1903; Jan. 3 and 30, 1903; March 11 and 21, 1903; Nov. 24, 1902; Dec. 29, 1902); Highland Park, Los Angeles County (Jan. 31, 1903); Los Angeles County (Dec. 14, 1906); Tejunga Wash, Los Angeles County (Sept. 10, 1890); Dulzura (March 15, 1894; May 13, 1892; June 3, 1891; June 9, 1890; August 1, 1889; Oct. 15, 1891); Kern County (May 29, 1907); Monterey County (June 12, 1903); Banta, San Joaquin County (May 25, 1896); Ocean Beach, near Mexican Boundary Line, San Diego County (August 17, 1894); Chulavista, San Diego County (Sept. 18, 1916); Campo, San Diego County (Feb. 3, 1903); Cameron Ranch, San Diego County (June 22, 1894); Pine Valley, near Mexican Boundary Line, San Diego County (Aug. 8, 1894).

Lower California.—Hanson Laguna, Hanson Laguna Mountains (June 6, 1905).

***Toxostoma redivivum sonomae* Grinnell.**

Toxostoma redivivum redivivum AUCT. (nec Gambel).

Toxostoma redivivum sonomae GRINNELL, Pacific Coast Avifauna, No. 11, October 21, 1915, p. 155 (one mile west of Guerneville, Sonoma County, California).

CHARS. SUBSP.—Similar to *Toxostoma redivivum redivivum*, but brown of upper parts more rufescent (less grayish); upper throat and chin more washed with buff; jugular band more buffy (less grayish) and not so dark; buffy ochraceous of posterior lower parts darker.

MEASUREMENTS.—Male:¹ wing, 97–107 (average, 103.2) mm.; tail,

¹ Thirteen specimens, from California.

122-140 (132.7); exposed culmen, 32-39.5 (36.2); tarsus, 37-41.5 (39.1); middle toe without claw, 23.5-26.5 (25.0).

Female:¹ wing, 97-103.5 (average, 100) mm.; tail, 125-136 (131.9); exposed culmen, 34-37 (35.2); tarsus, 36-40 (38.1); middle toe without claw, 24-26.5 (25.5).

TYPE LOCALITY.— One mile west of Guerneville, Sonoma County, California.

GEOGRAPHIC DISTRIBUTION.— Northern and central western California. Resident in the Upper Austral Zone and to a slight extent in the Lower Austral Zone, north to Baird (Shasta County), Stillwater (Shasta County), and Covelo (Mendocino County); west to Olinda (Shasta County), Cahto (Mendocino County); Ukiah (Mendocino County); Guerneville (Sonoma County), Freestone (Sonoma County), Marin County, San Francisco, Pescadero, and Santa Cruz; south to Santa Cruz, and in the Sacramento Valley to Marysville Buttes (Sutter County) and Folsom (Sacramento County); east to Los Gatos, San Jose, Berryessa, Santa Clara, Berkeley, Vacaville (Solano County), Rumsey (northwestern Yolo County), Placerville (Eldorado County), Wheatland (Yuba County), Nevada County, and Tehama.

Remarks.— As are all the forms of the species, the present one is subject to much individual variation, and the characters that separate it from *Toxostoma redivivum redivivum* and *Toxostoma redivivum helvum* are, strictly speaking, only average, although it is a race well worthy of recognition. This individual variation shows mostly on the jugulum, abdomen, and upper parts. Very badly worn specimens are sometimes difficult to distinguish from birds of the other races in similar condition. An example from Folsom, Sacramento County, (No. 82575, U. S. Nat. Mus.) is in perfect, fresh, fall plumage, and shows not the slightest indication of intergradation with *Toxostoma redivivum redivivum*.

The thrashers of this species occupying the upper Sacramento Valley and that part of the coast region lying north of San Francisco Bay have been recently separated by Dr. Joseph Grinnell² as a subspecies distinct from those inhabiting the coast region from San Francisco Bay south to Monterey Bay, which, as above noted, he considers true *Toxostoma redivivum redivivum*. With the type series of this additional northern race in hand, together with a

¹ Seven specimens, from California.

² *Toxostoma redivivum sonoma* Grinnell, Pacific Coast Avifauna, No. 11, October 21, 1915, p. 155 (one mile west of Guerneville, Sonoma County, California).

considerable number of specimens not examined by Dr. Grinnell, I am unable to discover any differences sufficiently constant or distinctive to warrant the recognition of an additional subspecies. It is true that comparison with only Dr. Grinnell's type series indicates the existence of the two forms, although even this is not very satisfactory; but when our series is combined with his it is apparent that there is not sufficient difference in even average characters to maintain the distinction. Not 50 per cent of the specimens from northern California can be separated by the color of the jugulum, flanks or upper parts, or, so far as I can see, by any other character, from those of the coast region south of San Francisco Bay; and while there is a slight average difference in the birds from these two areas, it is due largely to a few very gray examples in the type series, and is really so slight and inconstant as to be worthless for subspecific differentiation. Neither does a series of juvenal specimens of both these supposed races show any differences between them, as should be the case were the distinction tenable. Individual variation among the birds from north of San Francisco Bay is very great, and the most rufescent as well as the most grayish of the entire series, including those from south of this bay, are among the specimens from the north. Our examination is based primarily on birds in freshly moulted condition, as the aspect of the plumage changes greatly by any considerable amount of wear, and it is therefore difficult to predicate subspecific separations on worn birds. Furthermore, there is no satisfactory difference in measurements, as the table of measurements (p. 59) will show.

It is, as thus explained, necessary to unite the birds from north of San Francisco Bay, described by Dr. Grinnell as *Toxostoma redivivum sonomæ*, with the birds from the coast region south of this bay, called by him *Toxostoma redivivum redivivum*. Since, furthermore, the name *Toxostoma redivivum redivivum* is, as above shown, properly applicable to the southern bird heretofore called *Toxostoma redivivum pasadenense*, the name *Toxostoma redivivum sonomæ* Grinnell becomes necessarily the name for the northern subspecies as now defined.

Seventy-three specimens of this race have been examined, from the localities given below:

California.—Palo Alto, Santa Clara County (April 17, 1898;

Locality.	Wing.	Tail.	Exposed culmen.	Tarsus.	Middle toe with- out claw.
Nine males from north of San Francisco Bay.					
Minimum	97.0	122.0	32.0	37.0	23.5
Maximum	106.5	140.0	39.0	41.0	26.5
Average	102.4	132.7	36.2	39.1	25.0
Four males from south of San Francisco Bay.					
Minimum	104.0	127.0	36.0	38.5	25.0
Maximum	107.0	134.0	39.5	41.5	26.5
Average	105.0	129.6	37.0	39.8	25.5
Five females from north of San Francisco Bay.					
Minimum	97.0	128.0	34.0	37.0	24.0
Maximum	103.5	136.0	37.0	40.0	26.5
Average	100.0	133.5	35.4	38.1	25.5
Two females from south of San Francisco Bay.					
Minimum	100.0	125.0	34.5	36.0	25.0
Maximum	100.0	132.5	34.5	38.5	26.0
Average	100.0	128.7	34.5	37.2	25.5

July 15, 1904; June 3, 1898; March 13, 1898; Dec. 31, 1896); Santa Clara (June 25, 1875); San Francisco (winter); Presidio, near San Francisco; Stanford University (June 1, 6, and 8, 1900; Oct. 4, 1897); Round Valley, Mendocino County (Sept. 5, 1899); Stillwater, Shasta County (July 6, 1901); Mount George (August 2, 1909); Mount St. Helena (August 29, 1900); Olinda, Shasta County (Nov. 15, 1900); Calistoga, Napa County (Oct. 16, 1889); Folsom, Sacramento County (Oct., 1875); Baird (Jan. 3, 1884); Rumsey, Yolo County (June 28, 1912); Freestone, Sonoma County (June 14, 1913); One mile west of Guerneville, Sonoma County (August 29 and 30, 1913); Marysville Buttes (3 miles northwest of Sutter, Sutter County) (April 6, 1912); three miles south of Covelo, Mendocino County (July 21, 24, 25, and 26, 1913); near summit of Mount Sanhedrin, Mendocino County (August 17, 1913);

three miles west of Vacaville, Solano County (July 4 and 5, 1912); Berryessa (Jan. 22, 1889; April 11, 1896); Oakland (Feb. 24, 1881); Santa Cruz (July 8, 1896; August 31, 1895; Oct. 19, 1895; Nov. 25, 1895; Dec. 17, 1895); Santa Cruz County (Dec. 14, 1899); Big Trees, Santa Cruz County (May 15 and 18, —); Contra Costa; Berkeley, Alameda County (Feb. 20, 1898; March 22, 1897; April 10, 1897; Nov. 26, 1897); Claremont Canyon, near Berkeley (July 14, 1917); Pescadero (Sept., 1889); Los Gatos (Feb. 14, 1894; Oct. 22, 1894); La Honda, San Mateo County (March 24, 1896); Menlo Park, San Mateo County (Jan., 1896; Dec. 17, 1895); Portola, San Mateo County (Dec. 31, 1895); Cedro Cottage, San Mateo County (Jan. 17, 1903); Black Mountain, Santa Clara County (June 4, 1904; August 29, 1904); Nevada County (Sept. 25, 1887); Snow Mountain, Colusa County (June 3, 4, and 12, 1896).

***Toxostoma redivivum helvum* Thayer and Bangs.**

Toxostoma rediviva helva THAYER AND BANGS, Proc. New Engl. Zool. Club, IV, Apr. 30, 1907, p. 17 (Rosario, Lower California).

CHARS. SUBSP.—Similar to *Toxostoma redivivum redivivum*, but jugular band paler, less grayish (more washed or tinged with buffy); throat more deeply buffy (less whitish); flanks usually more brownish (less grayish); and remaining lower parts somewhat more deeply and brightly ochraceous.

MEASUREMENTS.—Male:¹ wing, 97–103 (average, 100.5) mm.; tail, 130–142 (137); exposed culmen, 33.5–36 (34.7); tarsus, 31–38 (35.8); middle toe without claw, 22.5–25 (23.9).

Female:² wing, 95–99 (average, 97) mm.; tail, 127–135 (131); exposed culmen, 32.5; tarsus, 35–37 (36); middle toe without claw, 23.5–24 (23.7).

TYPE LOCALITY.—Rosario, 30° N. Lat., Lower California.

GEOGRAPHIC DISTRIBUTION.—Resident in the Lower and Upper Austral zones of northwestern Lower California, north to the San Pedro Martir Mountains, northern Lower California, and Ensenada; west to Ensenada, Santo Domingo (northeast of San Quintin), San Simon, and Rosario, Lower California; south to Rosario and San Fernando (30° N. Lat.); and east to San Fernando and the San Pedro Martir Mountains.

¹ Seven specimens, from Lower California and California.

² Two specimens, from Lower California.

Remarks.—Although this race, hitherto unrecognized, except by its original describers, is confined to a comparatively limited area, it is apparently well worthy of subspecific status. Even birds in juvenal plumage are, at least in series, distinguishable from those of *Toxostoma redivivum redivivum*, as they are more deeply ochraceous below and more rufescent above; in fact, the present race, on the whole, as much resembles *Toxostoma redivivum sonomæ* as it does the adjacent and intervening *Toxostoma redivivum redivivum*, but it is distinguishable from the former by its decidedly more brownish (less grayish) and paler jugular band, less rufescent (more grayish) upper surface, and lighter posterior lower parts. This close similarity to *Toxostoma redivivum redivivum*, together with the fact that its characters were not quite correctly stated in the original description, doubtless account in large measure for the failure of subsequent authors to recognize it as distinct. We take pleasure therefore in being able to restore it to good standing among its relatives. The very extensive series that we have examined shows the paleness and brownish cast of the jugular band to be very constant, and, indeed, the best character for separation from *Toxostoma redivivum redivivum* or *Toxostoma redivivum sonomæ*.

One hundred and thirty-seven specimens of this subspecies have been examined, from the following localities:

Lower California.—Ensenada (Feb. 27, 1906; May 18, 1905); Laguna Ensenada (April 5, 1910); San Fernando (Sept. 4, 1905); Santo Domingo, 25 miles northeast of San Quintin (August 19, 1905); 45 miles east of San Quintin (Jan. 20, 1894); San Simon (Oct. 22, 1903); Rosario (Oct. 25, 27, 28, 29, and 30, 1906; Nov. 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 28, and 29, 1906).

NOTES ON NORTH AMERICAN BIRDS.

IV.

BY HARRY C. OBERHOLSER.

THE notes contained in this article¹ relate chiefly to the status and relationship of several North American birds. The remarks on one species are, however, nomenclatural. The four species and subspecies here treated belong to the following families: Pelecanidæ, Rallidæ, Scolopacidæ, and Icteridæ.

Pelecanus californicus Ridgway.

Mr. Robert Ridgway some time ago,² and Dr. E. Hartert somewhat more recently³ treated the California Brown Pelican as a subspecies of the eastern bird (*Pelecanus occidentalis* Linnæus); but this disposition recent writers have ignored. A careful examination of the considerable material now available leads to the conclusion that these two authors were correct in their view of its subspecific relationship. The Pacific bird, *Pelecanus californicus* Ridgway, differs from *Pelecanus occidentalis* of the Atlantic side of America in its decidedly larger size, darker brown hind neck, and, in the breeding season, by its reddish gular pouch. Neither the larger size nor the dark brown neck proves to be an entirely trenchant character, so that the only possible reason for treating *Pelecanus californicus* as a distinct species lies in the fact that during the breeding season its gular pouch becomes reddish. In view, however, of the ephemeral nature of this difference, it seems proper to consider the California Brown Pelican a subspecies of *Pelecanus occidentalis*, as Mr. Ridgway and Dr. Hartert have done. Its name becomes, therefore, *Pelecanus occidentalis californicus* Ridgway.

¹ For previous papers in this series, cf. 'The Auk,' XXXIV, April, 1917, pp. 191-196; XXXIV, July, 1917, pp. 321-329; and XXXIV, October, 1917, pp. 465-470.

² Proc. U. S. Nat. Mus., XIX, 1897, p. 593.

³ Novit. Zool., VI, 1899, p. 176.

***Creciscus coturniculus* (Ridgway).**

Mr. William Brewster has, from a systematic point of view, so fully and satisfactorily treated the Farallon Rail¹ that further remarks on the subject would now be unnecessary, were it not for the fact that most current authors consider it a species distinct from *Creciscus jamaicensis*, although both Mr. Ridgway and Mr. Brewster call it a subspecies. It differs, as explained by Mr. Brewster, from *Creciscus jamaicensis jamaicensis* in shorter, slenderer bill, darker lower parts, and more extended cervical chestnut area. None of these characters, however, holds constant in an extended series of specimens; for which reason it is perfectly evident that, although the Pacific Coast form is geographically far separated from the breeding area of the race of *Creciscus jamaicensis* inhabiting the eastern United States, we have here a case of subspecific relationship indicated by individual variation. The type of *Creciscus coturniculus*² is, as Mr. Brewster says, a specimen of the breeding Black Rail of California, not of either of the two Galapagos Islands species, *Creciscus spilonotus* (Gould) or *Creciscus sharpei* Rothschild and Hartert. Our California bird, therefore, must be called *Creciscus jamaicensis coturniculus* (Ridgway).

***Pisobia maculata* (Vieillot).**

The *Tringa maculata* of Vieillot³ was some time ago stated by Mr. G. M. Mathews⁴ to be preoccupied by "*Tringa maculata* Linnaeus"⁵; and for the species now called *Pisobia maculata* the name *Tringa pectoralis* Say was resurrected. Since further attention has been recently drawn to this matter by Mr. T. Iredale,⁶ it seems worth while to point out that there is no *Tringa maculata* Linnaeus⁷, but that in the place cited there occurs only *Tringa*

¹ 'The Auk,' XXIV, April, 1907, pp. 205-210.

² *Porzana jamaicensis* var. *coturniculus* Ridgway, Amer. Nat., VIII, February, 1874, p. 111 (Farallon Islands, California).

³ Nouv. Dict. d'Hist. Nat., XXXIV, 1819, p. 465.

⁴ Birds Australia, III, part 3, August 18, 1913, p. 261.

⁵ Syst. Nat., ed. 12, I, 1766, p. 249.

⁶ Ibis, ser. 10, III, No. 2, April, 1915, p. 390.

⁷ Syst. Nat., ed. 12, I, 1766, p. 249.

macularia, which is the original of the species now known as *Actitis macularia*. Our Pectoral Sandpiper must, therefore, retain its present designation of *Pisobia maculata* (Vieillot).

***Agelaius phœniceus arctolegus* Oberholser.**

The Northern Red-winged Blackbird was originally described¹ from specimens taken in Mackenzie, Alberta, and Manitoba. A large amount of material, much of it from the United States, examined during the last ten years, serves now to substantiate the validity of this form on the characters adduced in the original diagnosis. Although *Agelaius phœniceus arctolegus* has been sometimes synonymized with *Agelaius phœniceus fortis*, it is clearly different from that form by reason of the darker coloration of the female, both above and below; by the shorter wing and tail, larger bill, and somewhat paler buff of wing-coverts in the male; and is really much more closely allied to *Agelaius phœniceus phœniceus*, from which it is separable chiefly by its decidedly greater size, particularly the bill, as may readily be seen by reference to the original description.² Recent information permits also a much better delineation of its geographic range, which, together with that of *Agelaius phœniceus fortis*, as now restricted, are given below.

Agelaius phœniceus arctolegus.—Middle Canada with eastern and middle United States: breeds north to northern Manitoba and southern Mackenzie; west to southwestern Mackenzie, central Alberta, and central Montana; south to southeastern Montana, southeastern South Dakota, northwestern Iowa, southern Minnesota, and northern Michigan; east to northern Michigan and eastern Manitoba. Winters north at least to Arkansas and Kansas; south to southern Texas, Louisiana, and casually Alabama. Migrates west to Colorado and east to Ohio, casually to Connecticut.

Agelaius phœniceus fortis.—Middle United States, west of the Mississippi River: breeds north to Nebraska, Wyoming, western Montana, and Idaho; west to Idaho and Colorado; south to Colo-

¹ *Agelaius phœniceus arctolegus* Oberholser, Auk, XXIV, No. 3, July, 1907, p. 332 (Fort Simpson, Mackenzie, Canada).

² 'The Auk,' XXIV, No. 3, July, 1907, pp. 334-336.

rado and northwestern Texas, and east to central Nebraska. Winters south to Louisiana, southern Texas, and New Mexico (Aztec, Dec. 5, 1893, J. A. Loring). Occurs in migration east to eastern Nebraska and Arkansas.

THIRTY-FIFTH STATED MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

BY T. S. PALMER.

THE Thirty-fifth Stated Meeting of the American Ornithologists' Union convened in Cambridge, Mass., on Monday, November 12, 1917. The business sessions were held at the Colonial Club and the public sessions, beginning November 13 and lasting three days, in the Nash lecture room of the University Museum. The attendance included 21 Fellows, 20 Members, more than 100 Associates, and a number of visitors. Among those present were three of the 23 Founders of the Union, seven other members who were elected at the first meeting in 1883, and five members from Canada. Twenty-six papers were presented at the public sessions and three others were read by title.

BUSINESS SESSION. At the meeting of the Fellows called to order at 3.40 P. M. by the President, Dr. Albert K. Fisher, 16 Fellows were present. Percy A. Taverner, of Ottawa, Canada, was elected to fill the single vacancy in the list of Fellows and the amendment to the By-Laws proposed at the last Stated Meeting, providing that in joint meetings of Fellows and Members, 15 shall constitute a quorum, was formally adopted.

At the evening meeting of the Fellows and Members, called to order by the President at 8.30 P. M., 18 Fellows and 16 Members were present. The present status of membership in the Union as reported by the retiring Secretary is as follows:—"Fellows, 49; Retired Fellows, 3; Honorary Fellows, 14; Corresponding Fellows, 59; Members, 77; Associates, 689; Total, 891.

During the year, Nov. 13, 1916 to Nov. 12, 1917, the Union lost thirty-seven members, fifteen by death, and twenty-two by resignation.

The deceased members were: Dr. Edward Pierson Ramsay, a Corresponding Fellow, who died in Truro, near Sydney, Australia, Dec. 16, 1916, at the age of 74; Alfred John North, a Corresponding Fellow, who died at Sydney, Australia, May 6, 1917, aged 62 years; Dr. Emil August Goeldi, a Corresponding Fellow, who died in Bern, Switzerland, July 5, 1917, in the 58th year of his age, and the following Associates: William Purdy Shannon, of New York City, who died Oct. 29, 1916; Dr. R. L. Walker, of Carnegie, Pa., who died Nov. 19, 1916; Francis Windle, who died in West Chester, Pa., Feb. 24, 1917, in his 72d year; Newell A. Eddy, who died in Bay City, Mich., Feb. 28, 1917, in his 61st year; Mrs. Eleanor Beckwith Hitchcock, who died in Waterbury, Conn., March 3, 1917; Dr. Henry McHatton, of Macon, Ga., who died April 22, 1917; Norman DeWitt Betts, who was killed by lightning in northeastern Utah, May 21, 1917, in his 37th year; Chas. E. Ingalls, of East Templeton, Mass., who died May 31, 1917; Dr. Bert Heald Bailey, who died at Cedar Rapids, June 22, 1917, aged 42 years; Timothy Otis Fuller, who died in Needham, Mass., Aug. 17, 1916, aged 71 years; Samuel Wright, who died at Yonkers, N. Y., Jan. 18, 1917, in his 42nd year, and Mrs. Katharine Rebecca Styer, who died in Concordville, Pa., Jan. 20, 1917, in her 59th year."

The report of the treasurer showed the finances of the Union to be in a satisfactory condition with a balance of \$373.05 in receipts over current expenses and a total surplus, including receipts from life memberships and other invested funds, of \$3712.05.

The result of the election of officers for the ensuing year was as follows: President, John H. Sage, who had served as Secretary for 28 years; Vice-Presidents, Henry W. Henshaw and Witmer Stone; Secretary, T. S. Palmer; Treasurer, Jonathan Dwight; Members of the Council, Ruthven Deane, William Dutcher, Joseph Grinnell, Frederic A. Lucas, Wilfred H. Osgood, Charles W. Richmond, and Thomas S. Roberts.

Arthur Humble Evans of Cambridge, England, and William Lutley Sclater of London were elected Honorary Fellows, and

Frank Evers Beddard of London was elected a Corresponding Fellow. Rollo H. Beck, San Jose, Calif.; Winthrop Sprague Brooks, Boston, Mass.; James P. Chapin, New York City; Francis Harper, Washington, D. C.; and Winsor M. Tyler, Lexington, Mass., were elected to the class of Members; and the following one hundred and thirteen persons were elected Associates:

- Miss Florence I. Abbott, Upland Road, Andover, Mass.
 William Dunford Appel, University of Chicago, Chicago, Ill.
 Dr. H. Arey, Hospital Cottages for Children, Baldwinville, Mass.
 Edward Herbert Atherton, 82 Ruthven St., Roxbury, Mass.
 Francis L. Bacon, 236 Winona Ave., Germantown, Philadelphia, Pa.
 Arthur C. Badger, Dudley Road, Newton Centre, Mass.
 S. Prentiss Baldwin, 2930 Prospect Ave., Cleveland, O.
 Henry Bartlett, P. O. Box 68, Acushnet, Mass.
 Mrs. Harriet T. Boyd, 17 Marsh St., Dedham, Mass.
 Barron Brainerd, 57 Monmouth St., Brookline, Mass.
 G. Franklin Brown, Stonebridge, Needham, Mass.
 Claude A. Butterwick, 116 Broad St., Telford, Pa.
 A. H. Cahn, Biology Bldg., University of Wisconsin, Madison, Wis.
 Mrs. J. B. Campbell, 263 W. 7th St., Erie, Pa.
 Mrs. Thomas Carne, 41 Melrose St., Adams, Mass.
 Robert F. Cheney, Southborough, Mass.
 George K. Cherrie, Am. Mus. Nat. Hist., New York, N. Y.
 Charles A. Clark, 60 Lynnfield St., East Lynn, Mass.
 Llewelyn W. Cleveland, Vineyard Haven, Mass.
 Philip Hacker Cobb, 35 Matthews Hall, Cambridge, Mass.
 Robert L. Coffin, Mass. Agr. Expt. Station, Amherst, Mass.
 Mrs. Henry Franklin Cone, 4 Trinity St., Hartford, Conn.
 Miss Ada B. Copeland, 1103 White Ave., Grand Junction, Colo.
 Walter S. Cowing, 458 Locust Ave., Germantown, Philadelphia, Pa.
 Charles W. Dimick, 1007 Tremont Bldg., Boston, Mass.
 Joseph Scattergood Dixon, Mus. Vert. Zool., Univ. California, Berkeley, Calif.
 William H. Dunbar, 14 Sessions St., Bristol, Conn.
 Walter G. Fanning, 2 Hunt St., Danvers, Mass.
 Edward Rogers Farrar, South Lincoln, Mass.
 William Harmanus Fisher, Stock Exchange Bldg., 201 East Germain St., Baltimore, Md.
 Ralph E. Forbes, 328 Adams St., Milton, Mass.
 Mrs. John A. Gallagher, 5240 Belleview Ave., Kansas City, Mo.
 A. E. Ganier, 1221 17th Ave. S., Nashville, Tenn.
 Donald Andrew Gilchrist, Biological Survey, U. S. Dept. Agr., Washington, D. C.

- Mrs. C. H. Gleason, 700 Madison Ave., S. E. Grand Rapids, Mich.
Raymond J. Gregory, Princeton, Mass.
Horace Oakes Green, 114 North Ave., Wakefield, Mass.
Frederick Greenwood, 1724 8th Ave., Spokane, Wash.
Bertram S. Griffin, 22 Currier Ave., Haverhill, Mass.
George W. Hager, R. F. D. No. 3, Peterboro, N. H.
F. Gregory Hall, Milton, Wis.
William Webster Hall Jr., 15 East 75th St., New York, N. Y.
Walter C. Henderson, Asst. Chief Biological Survey, U. S. Dept. Agr.,
Washington, D. C.
Newbold Lawrence Herrick Jr., Cedarhurst, Long Island, N. Y.
Hiram A. Hotchkiss, Harding, Mass.
Dr. Lombard Carter Jones, Falmouth, Mass.
Francis T. A. Junkin, 2541 Michigan Ave., Chicago, Ill.
Allan Keniston, Edgartown, Mass.
Harry Stephen Ladd, 4354 McPherson Ave., St. Louis, Mo.
Hamilton M. Laing, 1277 E. 32d St. N., Portland, Ore.
Ralph Lawson, 88 Washington Square East, Salem, Mass.
John C. Lee, Grove St., Wellesley, Mass.
Mrs. Edward Lees, 252 Franklin St., Winona, Minn.
Edward C. Lewis, 607 Somerville Ave., Somerville, Mass.
John Alden Loring, Owego, N. Y.
George MacReynolds, Doyleston, Pa.
Ferdinand Schuyler Mathews, 17 Frost St., Cambridge, Mass.
Dr. George R. Mayfield, Kissam Hall, Vanderbilt West Campus,
Nashville, Tenn.
Albert D. McGraw, 5611 Stanton Ave., Pittsburgh, Pa.
Harry Arthur McGraw, 1805 15th Ave., Altoona, Pa.
T. H. McHatton, 163 Mill St., Athens, Ga.
Clyde McNickle, 417 Spruce St., New Castle, Pa.
B. G. Merrill, Hinsdale, Ill.
F. P. Metcalf, Biological Survey, U. S. Dept. Agr., Washington., D. C.
Mrs. Henry A. Miles, Hingham, Mass.
J. Sidney Moulton, Stow, Middlesex Co., Mass.
Leon Nelson Nichols, 1086 Amsterdam Ave., New York, N. Y.
Winthrop Packard, 1442 Washington St., Canton, Mass.
Charles Jackson Paine, 705 Sears Bldg., Boston, Mass.
Charles M. Parker, Box 141, Fiskdale, Mass.
Mrs. Charles M. Parker, Box 141, Fiskdale, Mass.
Mrs. Regina A. Paxton, 4728 13th St. N. W., Washington, D. C.
Kebble Perine, 26 Trull St., Dorchester, Mass.
Dr. Anne Elizabeth Perkins, So. Calif. State Hospital, Patton, San
Bernardino Co., Calif.
Frank O. Pillsbury, P. O. Box 84, 1088 Main St., Walpole, Mass.
Hon. Edmund Platt, Poughkeepsie, N. Y.
Miss E. Porter, 75 Saint James St. E., San Jose, Calif.

- Mrs. S. W. Powell, West Becket, Mass.
George D. Pratt, Conservation Commission, Albany, N. Y.
Charles I. Rawson, Oxford, Worcester Co., Mass.
Milton Smith Ray, 220 Market St., San Francisco, Calif.
Egmont Z. Rett, 3902 Pecos St., Denver, Colo.
W. D. Richardson, 4215 Prairie Ave., Chicago, Ill.
Miss Nancy P. H. Robben, 412 E. Merrimack St., Lowell, Mass.
Frank Robbins, Onset, Mass.
Royal Elisha Robbins, 61 Monmouth St., Brookline, Mass.
Conrad K. Roland, 1208 De Kalb St., Norristown, Pa.
L. F. Savage, 1210 Jenny Lind St., McKeesport, Pa.
Bradford A. Scudder, Greenwich, Conn.
Daniel William Shea, Catholic University, Washington, D. C.
Lester L. Shirley, 604 S 10th St., Vincennes, Ind.
Miss Rose Smith, College of St. Teresa, Winona, Minn.
Miss Caroline Gray Soule, 187 Walnut St., Brookline, Mass.
Miss Clementina S. Spencer, Dept. Zoölogy, Coe College, Cedar Rapids, Ia.
Henry B. Steele, 4530 Drexel Blvd., Chicago, Ill.
Mrs. Cecil Stewart, 451 Beacon St., Boston, Mass.
Dr. Arthur M. Stimson, Raymond St., Chevy Chase, Md.
Gardener D. Stout, 129 East 55th St., New York, N. Y.
Horace Taylor, 93 Binney St., Roxbury, Mass.
Gerald Thorne, Logan, Utah.
Miss Flora Trites, State Normal School, Winona, Minn.
Harry S. Trull, 317 East 196th St., New York, N. Y.
Stanton Warburton Jr., 1221 North Fife St., Tacoma, Wash.
James Dewey Watson, 6042 Harper Ave., Chicago, Ill.
Mrs. Jennie E. B. Webster, The University Society, 44 East 23d St., New York.
John B. Wheeler, East Templeton, Worcester Co., Mass.
Leo Wiley, Palo Verde, Imperial Co., Calif.
Mrs. Etta S. Wilson, 2 Clarendon Ave., Detroit, Mich.
Patrick Richard Wolf, 1129 Tinton Ave., New York, N. Y.
Dr. Casey A. Wood, 7 W. Madison St., Chicago, Ill.
Mrs. N. P. Wood, Northfield, Mass.
Dr. Lemuel F. Woodward, 52 Pearl St., Worcester, Mass.
Frank S. Wright, 14 Cayuga St., Auburn, N. Y.

The Committee on Biography and Bibliography through its chairman Dr. Palmer submitted a brief verbal report showing progress in most of the projects outlined in the last report (Auk, XXXIV, pp. 445-452, 1917). During the year efforts have been concentrated mainly on an 'Index of Portraits of Ornithologists', and a 'Bibliography of Bibliographies'. The Index now contains

references to published portraits of more than 700 ornithologists including about 300 members of the Union. This work is sufficiently advanced to warrant publication during the coming year. The Bibliography of Bibliographies comprises references to about 200 special bibliographies which contain about 26,000 titles. These include 70 authors' bibliographies with 9,500 titles, 80 faunal bibliographies with 12,500 titles and 50 miscellaneous bibliographies with 4,000 titles.

It was voted to exempt members of the Union actually engaged in military service, from payment of dues during the continuance of the war, and the Secretary was instructed to prepare a list of such members, (see p. 111).

PUBLIC SESSIONS. First Day. The meeting on Tuesday was called to order by the President, John H. Sage, at 10.20 A. M. After a brief announcement by the Secretary of the result of the election of officers and members the papers on the program were taken up in the following order:

'Cape May, New Jersey, and its Bird Life', by Dr. Witmer Stone.

'A Purple Martin Roost in the City of Washington, by Dr. H. C. Oberholser.

'Demonstration of a Feeding Slab', by William E. Saunders. This slab is devised to prevent sparrows from taking food put out for chickadees, nuthatches and similar birds. The food comprising nuts, sunflower seeds and suet is fastened to the under side of a board by simply heating the fat which sticks to the slab and being on the under side is out of reach of sparrows.

'Notes on British Guiana Birds, by C. William Beebe. Illustrated by lantern slides.

'Notes on the Breeding Warblers of Central New York, by Arthur A. Allen. Illustrated by lantern slides.

At the afternoon session, called to order by Vice President Stone, four papers were presented:

'Birds on Turrialba', Costa Rica, by Charles H. Rogers. Illustrated by lantern slides.

'The Present Status of our Black-capped Petrel,' with exhibition of skins and lantern slides, by G. Kingsley Noble.

'A four-months' Collecting Trip in Nicaragua,' by W. DeWitt Miller.

'In Audubon's Labrador,' by Dr. Charles W. Townsend. Illustrated by lantern slides.

Second Day. The meeting on Wednesday was called to order by Vice President Stone.

The first paper was: 'The Discovery of the Breeding Ground of the Large-billed Sparrow, and its consequences,' by Dr. H. C. Oberholser.

An hour was then devoted to a discussion of 'Ornithological Work in 1917.' The subject was introduced by the Secretary and the discussion was participated in by Dr. Oberholser, Dr. Chapman, and Messrs. A. A. Allen and T. Gilbert Pearson who mentioned various features of the activities of the year. The three other papers presented at the morning session were:

'Ferruginous Stains on Water-fowl,' read by A. C. Bent for the author, Frederic H. Kennard.

'The Span of Life and Period of Activity of Ornithologists,' by Dr. T. S. Palmer.

'A Review of the Work of the Asiatic Zoölogical Expedition of the American Museum of Natural History,' by Roy C. Andrews. Illustrated by lantern slides.

The afternoon program was opened by a paper on 'Sight Records — a Problem of Present-day Ornithology,' by Dr. Witmer Stone.

The remainder of the session was occupied by two interesting accounts of Ornithological field work in South America, illustrated by many lantern slides:

'An Ornithological Journey from the Tableland to the Tropics in Peru,' by Dr. Frank M. Chapman, and

'The Explorations of Rollo H. Beck in South America and the West Indies for the Brewster-Sanford Collection,' by Robert Cushman Murphy.

Third Day. The meeting on Thursday was called to order by Vice President Stone and five papers were presented at the morning session.

'Notes on *Oceanites oceanicus*,' by Robert Cushman Murphy.

'Vincent Barnard, an early Pennsylvania Ornithologist,' by Dr. Witmer Stone.

'In Memoriam — Edgar Alexander Mearns,' by Dr. Charles W. Richmond, read by Dr. Oberholser in the absence of the author.

'Some Phases of Summer Bird Life on the Arctic Coast,' by Dr. Rudolph M. Anderson. Illustrated by lantern slides.

'Tail Feathers and their Upper Coverts,' by Dr. Hubert Lyman Clark.

At the afternoon session several short papers were presented:

'Two Wounded Birds,' by Mrs. E. O. Marshall.

'Responsive Notes of some African Bush Shrikes' with imitations of the birds' calls, by Dr. Glover M. Allen.

'The Future of the Federal Bird Reservations,' by Dr. George W. Field. Illustrated by lantern slides.

'Exhibition of a Reel of Motion Pictures of a Loon taken by George D. Pratt,' by Robert Cushman Murphy.

J. Hooper Bowles' paper on 'The Limicolæ of the State of Washington' was read by title in the absence of the author, as was also John T. Nichols' 'Notes on Shore-bird Migration'. Howard H. Cleaves' 'Additional Studies of some Eastern Birds in Motion Pictures,' was unavoidably omitted because of delay in delivering the film before the session closed.

Resolutions were adopted thanking the Museum authorities of Harvard University for the use of the lecture hall for the meetings of the Union and for other courtesies extended, the Nuttall Ornithological Club for the cordial welcome and generous hospitality shown visiting members and friends, and the Boston Society of Natural History for the hospitality extended to the Union and its friends.

Other Events. The members and visitors were guests of the Nuttall Ornithological Club at luncheon each day at the Colonial Club. On Tuesday evening an illustrated lecture was given by Wm. L. Underwood, at the Boston Society of Natural History and was followed by an informal reception. On Wednesday evening the members met at dinner at Mifflin Hall in Brattle Square, Cambridge, and were afterward entertained by Dr. Charles W. Townsend who presented original descriptions, illustrated by lantern slides, of a number of the members. On Friday, November 17, after adjournment of the Union, about forty of the members conducted by Dr. Townsend and Mr. Francis H. Allen visited the sand dunes at Ipswich, Mass., where Ipswich Sparrows, Snow Buntings, and other characteristic birds were observed.

Opportunities were afforded for inspecting the collections of the Boston Society of Natural History and the Museum of Comparative Zoölogy, where the celebrated Lafresnaye collection of foreign birds is now preserved. Some of the members also examined the interesting collections of Auduboniana and Wilsoniana in the library of the Museum and visited several places of historic interest in Cambridge including the house (still in an excellent state of preservation) where Thomas Nuttall lived, and Mt. Auburn cemetery where Dr. Thomas M. Brewer, Dr. Henry Bryant and Dr. Samuel Cabot are buried.

The registered attendance of fellows and members was larger than at any previous meeting in Cambridge, the subjects aroused more discussion than usual, and an interesting feature was the number of papers on the birds of foreign countries, including those of northern Canada, Costa Rica, Nicaragua, British Guiana, Peru, Chile, Falkland Islands, China and Africa.

The next meeting of the Union will be held in New York City, in 1918, at a date to be determined by the local committee.

GENERAL NOTES.

Common Tern Nesting at Thousand Islands.— During two successive seasons I have found the nests and eggs of the Common Tern (*Sterna hirundo*) at the Thousand Islands.

On June 26, 1916, at Black Ant, a small isolated island just over the Canadian boundary, the flat rocky shores were covered with groups of brown splotched eggs. On July 27, 1917, at Eagle Wing, a very small island, hardly more than a large boulder, within a half-mile of Clayton, N. Y., eggs were tucked away in every convenient spot. On this island I captured and banded a young tern. He looked like a tiny yellowish chicken all covered with down, with black spots above, pinkish feet and bill, the latter black-tipped with a white dot, and angled below, of course.

Authorities at the New York State Museum inform me that this is a new record. Eaton in his 'Birds of New York' (1901) notes that "This bird is not known to breed within our limits, except on the seacoast." — MABEL METCALF MERWIN, *Clinton, New York*.

European Widgeon at Madison, Wis.— On April 22, 1917, a flock of ducks was observed in a small pond at the eastern end of Hammersly's Marsh. It contained about thirty Baldpates, a few Shovellers and Mallards, and a duck which at the first hasty glance I thought was a Redhead. In going over the flock carefully I saw to my great surprise that the latter bird was a fine European Widgeon, the white band on the crown making identification unmistakable. The birds were very tame and allowed my Airedale to pursue them repeatedly without flying more than a few feet. Having no means of collecting the bird at the time I returned early the following morning in company with Mr. Warner Taylor. The birds were still in the same pond and after observing the Widgeon to our satisfaction I carefully approached the place behind a weedy fence. On raising my head there was the European Widgeon swimming directly towards me not more than sixty feet away. He walked out on the shore and began feeding.

It is truly painful for me to state that I fired point blank at that bird with a twelve guage Winchester and the net result was a few feathers. There never was a bird that I wanted more but the fact remains that he flew into the marsh and soon began feeding. I tried in vain for an hour to get another shot.

The evening of the 24th the bird was still there and I lay on the ground in a cold driving rain until dark but was unable to get a shot. On the afternoon of the 26th I tried again with Mr. Taylor, he approached the pond from a direction opposite to my position in the weeds with the hope that the birds would come in, but they were now very wary, the European Widgeon being the second bird to leave the water. On the 29th Mr. Taylor found that the ducks had left the marsh.

Curiously enough on the 28th, Mr. G. H. Jenkins observed apparently the same European Widgeon in a flock of Baldpates about ten miles farther north in the Yahara Marshes and also missed a shot.—A. W. SCHORGER, *Madison, Wis.*

The European Widgeon in Massachusetts.—Messrs. Angell and Cash, the well-known taxidermists of Providence, Rhode Island, have kindly given me permission to report that an adult male European Widgeon (*Mareca penelope*), recently skinned and mounted by them, was shot at Chappaquiddick, Vineyard Sound, Massachusetts, October 6, 1917, by Mr. Arthur R. Sharpe. The specimen has been identified by Mr. Arthur C. Bent and Mr. John C. Sharpe, Jr. It would be interesting to know whether, as would seem to be the case, this old world species visits our Atlantic sea-board oftener now than formerly or is found there oftener merely because competent field observers of bird life are so much more numerous and omnipresent than they were thirty or forty years ago.—WILLIAM BREWSTER, *Cambridge, Mass.*

Little Blue Heron in Pennsylvania.—I wish to record two Little Blue Herons, *Florida cærulea*, male and female, in the white plumage, August 11, 1908, taken on the Conodoguinet Creek opposite the city of Harrisburg, Pa., for the Pennsylvania State Museum by Assistant Taxidermist W. J. Durborrow. These two birds were found in company with a flock of egrets. They were mounted and now form part of a group of Herons in the Pennsylvania State Museum.—BOYD P. ROTHROCK, *State Museum, Harrisburg, Pa.*

Northern Phalarope (*Lobipes lobatus*) in Michigan.—Professor W. B. Barrows has evidently overlooked an earlier record of the Northern Phalarope (*Lobipes lobatus*) in Michigan, when he states that two specimens procured in Sanilac Co., on Oct. 4 and 28, 1911, "seem to establish the bird properly in the Michigan List." (*Auk*, 1916, 336.) In 'The Auk,' 1913, p. 111, I recorded a ♀ taken in Lenawee Co., Sept. 14, 1899, by Dr. C. M. Butler, No. 170517 U. S. National Museum, which seems to constitute the first authentic record in the state.—B. H. SWALES, *Museum of Zoology, Ann Arbor, Michigan.*

Sharp-tailed Grouse at Tremont, Indiana.—Although familiar for many years with the Indiana dune region I never saw the Sharp-tailed Grouse (*Pediocetes p. campestris*) there until April, 1915.

A party of us were ascending Mt. Holden, a high dune about 200 feet high, just west of the Beach House of our Prairie Club, at Tremont, when I noticed some large tracks, like chicken tracks. We went quietly up the dune, and at the top saw a large grouse-like bird. It was not the least afraid of us, and allowed us to come about fifteen feet from it, giving us

an excellent opportunity of examining it, while at the same time it had the opportunity of examining us, which it did thoroughly.

It walked to and fro in a semicircle, with its head over its shoulder on the side toward the party, betraying not the slightest sign of fear, but on the contrary, the liveliest curiosity. We had never before seen a bird just like it, though some of us had shot a number of Ruffed Grouse, which are found in the dunes, and also Prairie Chickens.

It looked like a cross between these two species, plus a dash of Plymouth Rock stock. It was larger than either of the above-mentioned Grouse, resembling perfectly in shape and color, the picture of the Sharp-tailed Grouse in the 'National Geographic Magazine' for August, 1915.

We could see the preponderance of the ochraceous rusty-brown color with pale and dark bars and patches, giving somewhat the appearance of a young Plymouth Rock cockerel. We could see the feathers on the legs, coming down to the base of the toes, and also the projecting feathers in the middle of the tail.

After the bird had watched us sufficiently, it suddenly sprang up without the slightest noise, and soared away, first circling over Lake Michigan for some distance and then returning past us to the big woods to the south-east.

Since then this bird or a similar one has been seen by members of the Prairie Club in the big woods near the same spot, especially by Capt. Charles Robinson, A. Leonard and John Leegwater. Mr. Leegwater has had a better opportunity to study it than any one else, as he almost stepped on it in the swamp near the big woods, a few months later.

It did not fly off right away, but acted as if it had little ones, trying to draw him away, by pretending to be hurt. This was in September which seemed too late for young ones.

As I found no Indiana records, I was a little doubtful until I made inquiries. Butler in his 'Indiana Birds,' said that it might be found there. Mr. M. F. Green of Tremont, Indiana, an old resident, said he had occasionally seen and shot them since boyhood. Mr. Brown of Tamarack, the care-taker of the great Wells estate of 2200 acres of dunes, says he has also occasionally shot them, and that they breed in the dunes. Both of these settlers considered them a curious kind of Partridge, or Ruffed Grouse, of which there are a number in the dunes. Dr. J. Barrett, the State Geologist of Indiana, states that it has never before been recorded as a resident of Indiana.—GEORGE A. BRENNAN, *Chicago, Ill.*

The White-winged Dove (*Melopelia asiatica asiatica*) in Georgia.—On January 6, 1917, Mr. Harrison Lee, while out shooting Mourning Doves near his home three miles south of Hoboken, Pierce County, Georgia, observed a White-winged Dove perching in a little bush in an open field. Thence it flew to a fence-post, where it was shot. Mr. Lee left the specimen on a shelf in his house overnight, with the intention of having it preserved, but on the following morning it was found badly damaged by mice.

Accordingly he saved only the head and right wing, and on January 8 brought them to the writer at Floyd's Island in Okefinokee Swamp. These parts, which were preserved for the U. S. Biological Survey collection, readily establish the identity of the bird as *Melopelia asiatica asiatica*.

This constitutes apparently the first record of the species in Georgia.—FRANCIS HARPER, *Washington, D. C.*

The Harpy Eagle in Colorado.— In *November*, 1902, the following skit appeared in one of the Denver daily papers (probably the Republican).

"First Harpy eagle found in Colorado — Owner will make his the Only Mounted Specimen Known in United States. Pueblo, Colo., Nov. 29.— (Special). What is thought is the first specimen of the Harpy Eagle ever met with in Colorado has been sent to Capt. W. F. Dortenbach of this city by George H. Cress of Lees, Colo. It measures 7 feet, 11 inches, from tip to tip, and 42 inches, from beak to tail. It weighs 30 pounds. The bird is of a species exceedingly rare. So far as is known there are no mounted specimens in the country. The Smithsonian institute at Washington has several skins. The captain will at once mount the specimen, and will communicate with the leading ornithologists of the country."

The undersigned sent a letter to Capt. Dortenbach, asking for further data concerning this newspaper note and received the following reply:—

"Pueblo, Colo., Feb. 9. 1903.

Dr. W. H. Bergtold,
624 14th St., Denver.

Dear Sir:

Your favor of Feb. 2nd to hand. The Eagle of which you saw a note in the papers some time ago is still in my possession. Its identification was by myself but I only have Coues Key to North American Birds and as it is quite old it may be somewhat faulty. We are still working at the identification of the specimen and if it should prove to be a harpy eagle I will give you all the necessary data when I make my report to the Society. Thanking you for the inquiry and trusting that I may be able to meet you when I visit Denver again.

Very respectfully yours,

(signed) W. F. Dortenbach."

During the succeeding fourteen years this matter returned to the writer's mind several times, but, never having received further word from Capt. Dortenbach (which his letter promised in case the specimen should prove to be a harpy eagle), it was concluded that, on careful further study at Pueblo, it had been found that the bird was not a harpy eagle.

It was a matter of much surprise to the writer to find this old news-

paper record resurrected recently, and used to erect a record for this species in Colorado.¹

This list by Lowe places in scientific ornithological literature a record of a bird which has hitherto not been observed in the United States, and one of (probable) great rarity even in Mexico, and is a record based on data which seem rather dubious, and clouded by uncertainty. The writer's interest in Colorado ornithology impelled him to send two other letters of inquiry to Capt. Dortenbach but they remain unanswered up to the present moment (December 4, 1917). The above facts are published, not only to add to the completeness of this alleged record, but to exhibit the ground on which the writer personally feels warranted in rejecting this record, and in advising his ornithological confreres to do likewise.—W. H. BERGTOLD, *Denver, Colo.*

The Happy Eagle in Colorado.—An interesting example of the great care necessary in placing occurrences of rare species on permanent record, is contained in 'The Auk' for October, 1917. In a paper appearing in this issue by Mr. Willoughby P. Lowe, entitled 'Remarks on Colorado Birds,' is a record for the Harpy Eagle, *Thrasaëtus harpyia*, which, if valid, would not only be new for the Colorado list, but in all probability would constitute the only record for North America. The occurrence is based on a specimen "shot by Geo. Cress of Lees, Pueblo Co., some years ago and preserved by (W. F.) Doertenbach of Pueblo".

Immediately upon noting the above, I wrote to Mr. Doertenbach, who had previously afforded me considerable assistance in clearing up other records credited to Colorado, asking for a statement regarding the specimen and for the address of Mr. Cress. An interesting correspondence ensued which, through the courtesy of Mr. Doertenbach, I am permitted to use, together with a photograph of the mounted specimen, still in the possession of Mr. Cress, now of Carson City, Nevada. In replying to my original inquiry, Mr. Doertenbach wrote in part, as follows:—"... the specimen we think is a Harpy Eagle.... [and I]... will... send you a photo of the mounted specimen. The bird was not mounted with the ruff about the head spread so it will not resemble the specimens in the National Museum collections. Also the specimen was larger than the one displayed in that collection and the feathers about the head were not so grey.... The bird in question may not have been a Harpy but it is distinctly different from any other eagle that I have ever handled".

From the photograph sent with the above it was at once apparent that the bird was not a Harpy but was an immature Bald Eagle, *Haliaeetus leucocephalus*, which is, however, rare in Colorado. The peculiar plumage of the young of the latter species evidently caused the confusion. I thereupon had the photograph of the Harpy Eagle in Mr. C. W. Beebe's book

¹ Remarks on Colorado Birds. Willoughby P. Lowe. Auk, October, 1917, p. 454.

'The Bird,' copied, sending one copy to Mr. Doertenbach and another to Mr. Cress, with the request that they advise me whether or not it resembled the specimen in question. Both agreed that it did not. Mr. Cress, in his reply, stated positively that the photograph sent him "does not compare at all" with his specimen, stating further that "it has no extra long feathers on the back of the head like your photo", but that "its head is smooth like the Grey Eagle or Bald Eagle".

It seems probable that at the time of the collection of the specimen, considerable discussion was engaged in by the interested parties, the conclusion that it was a Harpy being reached without the proper knowledge of the status or appearance of this species. — F. C. LINCOLN, *Denver, Colo.*

Sap Drinking by Sapsuckers and Hummingbirds.— Mr. H. Mousley's notes on 'Sap Drinking Habits of Warblers' bring to mind some of the experiences which Mrs. Wright and I had through considerable of the summer of 1912. The ensuing fall Mrs. Wright made the following notes which might have some interest in this connection.

Mr. Alvah A. Eaton has written of Anna's Hummingbird in California visiting the holes of a Sapsucker (*Sphyrapicus ruber*). Mr. Frank Bolles has told of his observations of the Ruby-throat (*Trochilus colubris*) in Maine as a regular attendant at the holes of the Yellow-bellied Sapsucker (*Sphyrapicus varius*). Last summer we had the pleasure of watching this interesting phenomenon.

We were camping near Dorset, Ontario. Nearby there were many trees girdled with the holes of the Yellow-bellied Sapsucker. Yellow birches were the favorite haunts. Two birches just behind the camp seemed the special rendezvous for both sapsuckers and Ruby-throated Hummingbirds. Indeed the Hummingbirds seemed very much at home, delicately sipping sap at the table of their yellow-bellied friend. As the holes were about fifteen feet from the ground, we fastened a platform between a ladder and the tree on a level with the holes. Even this unsightly object did not lessen the birds' visits, and one could stand at the top of the ladder with camera on the platform scarcely six feet from the birds. The birds were so active however, that it proved difficult to get many pictures.

There was at least one whole family of sapsuckers who came frequently. Their different modes of approach were interesting. Sometimes, one would fly to a large tree near by, and then directly to the holes after looking all around, or he might fly to the top of the tree and then work his way down the trunk. One bird almost invariably flew to a branch below the holes and one the far side of the trees, edged along this branch, then flew to the side of the tree away from the platform, and next cautiously worked his way around to the fresh holes.

Quite different was the hummer's approach. The first intimation of his visit was likely to be the whirl of wings past one's ears. Quite frequently, he visited the tree while the sapsucker was there, and at times when he

arrived first, even tried to keep the sapsucker away. At other times, the sapsucker retaliated and kept the hummer away. Seldom did the hummer's presence keep the sapsucker from coming. There were at least four hummingbirds that visited this one tree, and the combats between them were highly entertaining. One male would not allow the other male to approach while he was there. He would allow one female to visit, but never the other one. Nor would the two females tolerate one another's society.

Very often the hummers rested quietly on the branches nearby, sometimes for long periods even when no bird was at the tree, neither did we observe that they showed much agitation, swinging the head, as Bolles describes.

In drinking the sap, they most often hovered just below the hole, keeping their bills in the hole and taking long draughts. At other times, they clung to a small projecting piece of bark below the holes, and folded their wings.

The birds usually came from one of two directions and flew away in the same directions, leading us to suppose that there were but two pairs which came, and also that this might be one of a round of trees.

A few butterflies, many hornets, and a host of smaller insects were at the holes. These small insects were, I judged, the attractive feature to the female Black-throated Blue Warbler who visited the tree several times.

These observations extended from July 28 - September 10 and were not solely fall records. We noted that the Black-throated Blue Warbler would sometimes hover like a hummingbird before the sap but usually the bird would alight on and proceed diagonally around the hole, more like a nuthatch or Black and White Warbler and not after the fashion of a woodpecker.—A. A. and A. H. WRIGHT, *Ithaca, N. Y.*

Starlings (*Sturnus vulgaris*) at Barnstable, Mass.—Mr. W. S. Holway of Watertown, Mass., who has a hunting shanty on the Great Marshes at Barnstable, communicated to the writer the following bird tragedy.

The shanty which has not been in use during the summer was visited on August 26 by Mr. Holway's brother, who was to look it over and put it in order for the fall gunning. As he entered he heard a flutter in the vertical part of the stove pipe, and some distance above the damper discovered a small hole in which he thought he could see something moving. Enlarging the opening to investigate, sixteen birds came flying out one by one. On taking down the pipe he found a solid mass of dead birds from the damper to the hole, and a dozen more in the horizontal run. At the bottom of the outside chimney, into which the horizontal pipe fitted, were at least fifty. In all, he said, there were over one hundred. Specimens brought to the writer for identification proved to be Starlings.

The birds made their entrance through the slots of the cap on the chimney, and were evidently unable to fly up and out of the small pipe or to

crawl up its smooth, glazed lining. Mr. Holway placed some fine chicken wire over the cap to prevent the birds from entering in the future. Incidentally, this suggests the lines along which a Starling trap may be made when it shall become necessary to deal more strenuously with these annoying pests.—T. E. PENARD, *Arlington, Mass.*

Yellow-headed Blackbird in New Jersey.—A specimen of the Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) was secured on Newton Creek, N. J., near Audubon, by Mr. Wm. J. Kelton on September 1, 1917. It is a male of the first year, and has been mounted. I am indebted to Mr. Joseph W. Tatum for calling my attention to the capture and for bringing the specimen to me for identification.—WITMER STONE, *Academy of Natural Sciences, Philadelphia.*

The Bohemian Waxwing in Grand Junction, Colo.—In order to make more complete the local records of the remarkable wave of Bohemian Waxwings which passed over the Rocky Mountain Region last winter, I wish to put into print the following notes, made at the time by myself, on the occasions of the species' visits to Grand Junction. In order to make clear the import of some of my remarks, it becomes necessary to say that Grand Junction is on the Grand River, and is, in effect, at the western edge of the Rocky Mountain range, and its outlying foothills, its altitude being 4583 feet.

The first pair of these birds was seen February 25, 1917, in some bushes on the Grand River in the western part of the city, and on February 28 a second (or the same) pair was seen at the same place. A few days later a large flock was observed by Mr. Harmon on his ranch east and north of the city. Between March 3 and 19, many flocks—and large ones—were noticed every day on the river; they would first be seen on the river where it passes through Grand Junction, about 10.30 in the morning, travelling down stream, very slowly, and resting and flying from tree to tree, and bush to bush. The procession of birds continued all day, and ceased about four o'clock P. M. All went downward on the river, and seemed never to leave it to go into the residential portions of the city. On the ranches the general direction of movement was northwest. All of the irrigating canals and laterals were dry at this time and this may account for the river movement, though I am not sure that such is a correct explanation. I could not determine with certainty what the birds were eating but Mr. Harmon was convinced that they worked on the buds and insects of the ranch orchard trees. At times the birds seemed stupid as if they had eaten too freely before reaching my post of observation. Large flocks appeared from time to time on the neighboring ranches, and for two weeks after they had left the river and the vicinity of its banks. At times the birds seemed quite friendly, and would come down to the lower branches of a tree, to inspect the "onlookers," flying at times so near to one that to dodge was irresistible, and the most natural thing to do. No effort was

made to collect any of these birds, though one specimen was brought in to me, which gave an opportunity to clinch the previously made (field) diagnosis.—ADA B. COPELAND, *Grand Junction, Colo.*

Concerning Brewster's Warbler.—Additional notes on Brewster's Warbler in the July Auk (pp. 481 to 482) by Walter Faxon have much interest. In reading them I notice that he has not touched on one aspect which may not be clear to those unfamiliar with the laws of alternative inheritance.

Supposing, as we do, that where as Brewster's Warbler is the dominant, Lawrence's is the recessive hybrid, it could not be obtained from a cross in which one of the parents was a pure-lineage bird of either species, as the white under parts of *Vermivora chrysoptera* or the lack of throat patch of *pinus* would dominate in every such case. The comparative abundance of *chrysoptera* in the region under discussion makes it probable that the Golden-wings observed mated were pure.

Judicious shooting of *chrysoptera* over the *leucobronchialis* locality would probably induce sufficient *leucobronchialis* interbreeding, so that we would have the final chapter in this interesting colony; an heroic measure perhaps, but doubtless more specimens are frequently taken with less return to science. To interfere with *pinus* would be unwise, as the sporadic occurrence of that species in the Golden-wing's range places it in the position of the goose that layed the golden eggs.—J. T. NICHOLS, *New York, N. Y.*

Brewster's Warbler in Pennsylvania.—Noticing the references to Brewster's Warbler (*Vermivora leucobronchialis*) in Massachusetts in the October number of 'The Auk' I am reminded that its occurrence in Pennsylvania in May, 1916, has not been recorded in this publication. On May 20, 1916, a male specimen was observed on the north shore of Pocono Lake, Monroe Co., Pa., by Messrs. Wm. L. Baily, John Carter, Samuel Scoville, J. Fletcher Street and the writer. The bird was feeding among briars and other low bushes in an overgrown clearing in woods bordering an alder swamp, and was so accommodating as to allow us an unlimited observation at close range.—G. H. STUART 3RD, *Philadelphia, Pa.*

Blackpoll Warbler Lingering in Mass.—I had thought that the climax of the most backward spring migration I have ever known had come when I heard singing, and subsequently saw at close range, a Blackpoll Warbler in Cambridge Common on June 25 of this year, eighteen days later than any record in Brewster's 'Birds of the Cambridge Region.' However, on July 7 I observed one singing on Quarry Point, Cohasset, Mass., and subsequently recorded him regularly, though with decreasing frequency during August, as he sang less and less, and was practically undiscoverable when not singing, in spite of the fact that he appeared to

keep to an area of not over twenty acres in the center of the point. Though I watched his movements closely for considerable periods I could never discover that he approached any nest, had a mate or young, nor did a search of the small cedars, pitch pines, and bushes of the area reveal them. I must conclude therefore that he was a stray, probably straggling north very late indeed and possibly stopped by the ocean lying immediately north for some twenty miles. I heard and saw him for the last time on August 27, though he may well have remained there until the fall migration.—ARTHUR C. COMEY, *Cambridge, Mass.*

Labrador and Acadian Chickadees at Hatley, Stanstead County, Quebec.—On the early and no doubt record date of September 3, two examples of the Labrador Chickadee (*Penthestes hudsonicus nigricans*) were obtained and three others noted between then and the twenty-first, whilst on October 11 two examples of the Acadian (*Penthestes hudsonicus littoralis*) were seen at close quarters and easily identified from the former, not so much from the fact of their backs being brown instead of dusky, the caps undifferentiated, and the sides of a strong brown tint, but more from their behavior and the tone of their voice, which was entirely different to that of the sixteen *nigricans* I have so far come across. The same wheezy note was certainly there, but it was stronger and more insistent than in *nigricans*, which has a very feeble wheeze. As regards their behavior they came close down to me of their own accord and when whistled, the same as *atricapillus* will, a thing I have never known *nigricans* to do, in fact it has always been a matter of much difficulty to get a shot at these latter owing to their restless and nervous state.—H. MOUSLEY, *Hatley, Que.*

Willow Thrush in Pennsylvania.—I wish to report the finding of a male specimen of Willow Thrush, *Hylocichla fuscescens salicicola*, August 28, 1913, in Capitol Park, Harrisburg, Penna. This bird had evidently struck a wire as was indicated by a mark found when the bird was skinned. The skin I sent to Mr. Harry C. Oberholser of the U. S. Biological Survey, Washington, D. C., who identified it as the Willow Thrush. It is now in the collection of the Pennsylvania State Museum. There is no previous record of this subspecies occurring in Pennsylvania.—BOYD P. ROTHROCK, *State Museum, Harrisburg, Pa.*

Subsequent Nestings.—I was very interested in reading an article by Mr. Mousley on subsequent nestings, (*Auk*, October, 1917). I have seen many interesting cases, and find that most birds will lay two or three sets of eggs in succession, but the most persistent pair of birds I have ever seen, were a pair of White-rumped Shrikes.

I first made the acquaintance of these birds on the 16th of May, 1916, at the Fairview Cemetery at Wahpeton, North Dakota. The second of

June I saw the birds feeding five young ones, and a few days later, I found the nest, where the young were raised. The nest was placed in the lower branches of a cottonwood about ten feet from the ground. April 1, 1917, the birds were back in their old haunts, and on April 15, they had finished repairing the old nest. April 23, I collected a set of six fresh eggs. The shrikes then moved away about two hundred and fifty feet and repaired a last year's robin nest. The ninth of May I looked into the nest and found five fresh eggs. This nest was placed twenty feet from the ground. Two or three days later the nest blew down or was torn down.

One week later a new nest was built, also in a cottonwood six feet from the ground. It contained three eggs. Laborers went to work trimming the trees and by cutting off the lower branches, the nest was destroyed. June 2 a new nest was found in a cottonwood fifteen feet from the first nest. It contained six fresh eggs.

I collected this set, and the birds again went to work, this time repairing an old nest of a Brown Thrasher. This nest was about seventy feet from Nest No. 1 and five feet from the ground. It contained on the fifteenth of June a set of six fresh eggs.

I had robbed the birds of two sets of eggs and had seen two sets lost by accident, and however interesting it might have been to carry the experiment farther, I could not do it, so I watched the birds raise a family of six healthy young.

I have now in my collection two sets or twelve eggs of these birds and had an opportunity to see fourteen eggs more, and I found them all so near alike, that it would be impossible to pick out the different sets, if the eggs became mixed.

When I found the first nest the birds would stay near by, whenever I went to examine it. Later they grew so bold, that if I came near the nest, they would fly at me screaming and biting, one even causing me a bleeding wound on my hand.

As the country is level, open, almost treeless, and I did a good deal of exploring, I feel certain that these were the only pair of shrikes in this locality, and that I could not possibly have overlooked another pair of birds.—J. K. JENSEN, U. S. Indian School, Santa Fe, New Mexico.

Uncommon Birds at Hatley, Stanstead County, Quebec.—It may be interesting to record the fact of having found the Red-headed Woodpecker (*Melanerpes erythrocephalus*) breeding here this summer, the nest being in a dead maple tree at the roadside about fifteen feet above the ground, and when found on July 16, containing four young birds which left the nest between July 31 and August 4. During the same month, and whilst on my way to visit the above nest I came across an example of the Turkey Vulture (*Cathartes aura septentrionalis*) on July 31, which I was enabled to follow about in a large wood for some considerable time and thoroughly identify. Two months later, or on September 24, whilst hunt-

ing in "the marsh" I was fortunate enough to secure a fine example of the Green Heron (*Butorides virescens virescens*) and shortly after whilst visiting a farmer in the district I was shown a mounted example of the Black-crowned Night Heron (*Nycticorax nycticorax naevius*) which he had shot some eight years ago at Fitch Bay about twelve miles from Hatley. At another house I was shown a mounted male example of the Arctic Three-toed Woodpecker (*Picoides arcticus*) which was shot about two years ago in the fall near Massawippi, all these five birds being new to my list.—H. MOUSLEY, *Hatley, Que.*

Early Bird Records for the Vicinity of Washington, D. C.—The Bulletin of the Proceedings of the National Institute for the Promotion of Science contains numerous records of birds collected near Washington, most of which are the earliest published for the region. Those worth recalling to attention are: *Larus eburneus*¹ (= *Pagophila alba*), not otherwise recorded; *Fuligula perspicillata* (= *Oidemia*), meeting of February 14, 1842,² a record sixteen years prior to the earliest cited by Professor W. W. Cooke; *Fringilla nivalis* (= *Plectrophenax*), meeting of March 14, 1842,³ for which there are only two other records, the next in 1886; *Thalasidroma leachii* (= *Oceanodroma leucorhoa*) and *T. wilsonii* (= *Oceanites oceanicus*), meeting of September 12, 1842,⁴ now known to have been taken the previous month after a violent northeast storm; at the same meeting *Puffinus cinereus* (probably = *P. griseus*), the only record for a shearwater for the region; *Fuligula glacialis* (= *Harelda hyemalis*), meeting of November 14, 1842,⁵ and earlier record by fourteen years than any cited by Professor Cooke; and *Ortygometra noveboracensis* (= *Coturnicops*) "said to be the only one ever found in this District, killed on the Potomac River, opposite Washington — From George Washington Custis," meeting of November 13, 1843,⁶ an addition to the three records listed by Professor Cooke, and thirty-six years earlier than the oldest of them.—W. L. MCATEE, *Washington, D. C.*

¹ Second Bull., Meeting of January, 1842, p. 134.

² Second Bull., p. 148.

³ Third Bull., p. 224.

⁴ Third Bull., p. 251.

⁵ Third Bull., p. 262.

⁶ Third Bull., p. 320.

RECENT LITERATURE.

Herrick's '*Audubon The Naturalist*.'¹—Most of us have come to feel that we are so thoroughly conversant with the life of Audubon, many of us having prepared brief biographical sketches or addresses in connection with the numerous societies which bear his name, that we are apt to look upon a "new life" of the naturalist as necessarily a work of supererogation—a redressing of a well worn theme. If anyone open Prof. Herrick's volumes with such an idea in mind, he will very soon be disabused of it. Almost from the first page we realize that here at last is the real life of Audubon beside which all previous efforts fall into insignificance.

Not only is there a vast amount of new data covering the blanks in the accounts of former biographers, rounding out many incidents and correcting many errors, but the whole treatment is that of the disinterested, unprejudiced biographer and scholar. Previous sketches of the naturalist's life when carefully analyzed are found to be largely based upon his own brief autobiography, apparently written for his children, without reference to documents and hence relying mainly upon memory, with inevitable lapses and errors. Most of the estimates of his character and achievements too, are to a greater or less extent tinged with the spirit of hero worship, that such a lovable, picturesque and magnetic man as Audubon was bound to arouse even in those who knew him only through his writings and paintings. Prof. Herrick on the contrary has, we think, maintained an eminently just attitude throughout his work, as behooves the good biographer; always thoroughly in sympathy with his subject, praising his achievements, and yet frankly admitting his errors. The result is that after reading these volumes we seem to know Audubon better than we ever did before and to have a still better appreciation of him.

When we realize what Prof. Herrick has accomplished in tracing out the life of Jean Audubon, father of the ornithologist, and ascertaining the date and place of birth of the latter as well as the identity of his mother,—all of which were previously involved in obscurity, we wonder why no one ever made the attempt to solve these problems before, and why we were content to conclude that the last word had been said upon the life of this remarkable man.

Prof. Herrick realizing the inadequacy of existing biographies and the need of much additional original information systematically set about searching for it, with the result that he finally discovered in France the

¹ *Audubon, The Naturalist. A History of his Life and Time.* By Francis Hobart Herrick, Ph. D., Sc. D., Professor of Biology in Western Reserve University; Author of "*The Home Life of Wild Birds*," etc. In two volumes. Illustrated. D. Appleton and Company. New York and London, 1917. 8vo. Vol. I, pp. i-xl and 1-451. Vol. II, i-xiii and 1-494. Price, \$7.50 net.

greater part of the manuscripts, letters etc., of Jean Audubon, still in the possession of the family which had inherited his widow's estate. With this material it was possible to clear up all the doubts regarding the birth of the ornithologist and to sketch in detail the life of his father. We now learn that Audubon was born on April 26, 1785, not May 5, 1780, as is usually stated; and that the place of his birth was Les Cayes on the southern coast of Haiti not in Louisiana, while his mother proves to be a French creole, one Mlle. Rabin.

Continuing his researches Prof. Herrick brought to light many unpublished letters and documents in the possession of the descendants of Rozier, Audubon's business partner during his early life at Mill Grove and in Kentucky. These shed much interesting light upon this period of the naturalist's history. The well known collections of Auduboniana belonging to Mr. Joseph Y. Jeanes, of Philadelphia, Mr. Ruthven Deane, of Chicago, Col. John E. Thayer of Lancaster, Mass., and Harvard University, were carefully studied and all printed matter relating to Audubon has been consulted.

With the results of his researches extending over ten years, thoroughly digested, Prof. Herrick has written his notable biography,—or better, history, for it is far more than a biography, following out as it does so many side lines in chapters replete with interesting historical information relating to many persons, places and events only incidental to the main theme. The work abounds in detailed information, with foot-notes full of references and exact quotations, and an abundance of illustrations—photographic reproductions of historical documents and early sketches, portraits of Audubon and of various persons mentioned in the text, as well as views of buildings and places associated with the life of the ornithologist. There are also several reproductions in colors of some of the plates of the 'Birds of America.' A series of appendices contain copies of original documents of all sorts; a list of original drawings by Audubon which are still extant; a list of the subscribers to the 'Birds of America'; a list of the authentic likenesses of the ornithologist and a bibliography of two hundred and thirty-four titles of which Audubon's own contributions are seen to number but thirty-seven all told.

This brief resumé will give some idea of the scientific and historical value of the book. But it has other merits as well. Prof. Herrick has the happy faculty of writing history and biography in a manner that is not only eminently scholarly but exceedingly interesting and as a result we have in these two volumes a delightfully entertaining piece of literature, which will appeal to many who may care little for Audubon as an ornithologist.

It would be manifestly impossible in the short space of a review to call attention to all the original matter presented by Prof. Herrick and everyone interested in Audubon must read the volumes for himself. Mention may however be made of certain chapters, dealing with the character of the man, which has always been a matter of foremost interest.

In that dealing with Audubon's 'Episodes of Western Life,' Prof. Her-

rick has published some interesting parallel accounts by other writers of incidents described by the ornithologist, which differ widely as to detail. He says in commenting upon this discrepancy, "Whenever Audubon went directly to nature to exercise his pencil or brush or wrote with his subject before him, he was truth itself, but in writing offhand and from memory of past events he was wont to humor his fancy disregarding dates as readily as he did the accents on French words."

A striking example of this carelessness is seen in his unfortunate article 'Notes on the Rattlesnake,' which brought forth such bitter attacks upon his veracity as a naturalist. This remarkable account describes the venomous reptile pursuing a Gray Squirrel through the branches of a tall tree and eventually capturing it after leaping to the ground after it. This remarkably detailed account, says Prof. Herrick, "could not possibly have been an invention for it is strictly and minutely in accordance with facts except in one important particular; the snake whose behavior Audubon watched and so accurately described was not a Rattlesnake but the Blue Racer or Black Snake . . . by some curious twist of his notes or memory the species became confused in his published account."

This peculiar trait so well appreciated by Prof. Herrick, has to our mind been at the root of all the unfortunate controversies over Audubon's work as well as of the so called "rivalry" between Audubon and Wilson, which of course did not begin until long after the latter's death. To the scholarly closet naturalist like George Ord, as to anyone trained in the painstaking accuracy of systematic natural history, the freedom and looseness of Audubon's style, the "poetic license" with which he handled scientific matters, was utterly repugnant. They could recognize no natural history but that fostered in the museum. John Cassin, another closet ornithologist had exactly this same idea of what constituted a naturalist and as he never showed any prejudice against Audubon and indeed seems to have been rather friendly disposed towards him, it is interesting to note his opinion of him, which by the way Prof. Herrick does not seem to have given. He met Audubon at the Philadelphia Academy in June, 1845, and wrote to Baird on the twenty-third of that month: "Audubon has been here — do not particularly admire him — is no naturalist — positively not by nature — an artist no reasonable doubt of it."¹

So the estimates of Audubon will probably vary for all time to come according to the personal temperament and attitude of mind of his critics.

As to the Audubon and Wilson "controversy"; to anyone who has carefully and impartially studied the lives and characters of the two men the idea of comparing them by the same standard of judgment is utterly preposterous. They represented entirely different sides of ornithological study and one might as well try to argue, in these days of extreme specialization, who is the greatest living ornithologist, as to say that either of these men was greater than the other.

¹ *Leading American Men of Science*, p. 80.

That Prof. Herrick's volumes contain references to all the existing matter relating to the ornithologist we doubt, and he would probably be the first to admit this possibility. The very amount of material, astonishing as it is, that he has gathered together only makes it more probable that there are yet other published notes and manuscripts undiscovered, but they are not likely to alter in any material way the history that he has written, even while his pages were going through the press several notes have appeared in print, among which we may mention the description of Audubon republished by John H. Sage in 'The Auk' (April, 1917, p. 239). Another article in the same journal 'Miss Lawson's Recollections of Ornithologists' by F. L. Burns (July, 1917, p. 275), corrects a statement regarding Wilson which we notice Prof. Herrick has perpetuated, *i. e.* referring to "his fingers stiffened by the hard labor of his hands." This we always thought to have been a fiction of some of his biographers, as he wrote a beautiful hand, played skilfully on the flute and worked at the loom, none of which accomplishments accord well with "hands knotted and hardened by labor," these points Miss Lawson emphasizes adding that her mother spoke of Wilson's hands as small and delicate.

In closing, we should like to emphasize in the strongest terms Prof. Herrick's plea for the restoration and preservation of the dwellings of Audubon and his sons in New York City which "though in dire neglect, are not beyond repair," and that the ground where they stand, between Riverside Drive and the Hudson River, should be converted into a real Audubon Park. As he truly says "such a memorial would contribute to the instruction and pleasure of all the people, for every generation of Americans that is to come" — and we may add that this closing sentence of Prof. Herrick admirably describes the volumes that he himself has given to the public, the contents of which we have here endeavored to describe. — W. S.

The New 'Birds of America.'¹ — The present work the publishers tell us in the preface is put forth to meet the demand for a single work which will present "a complete review of what is known today about American birds." While this is a pretty large task even for the imposing array of authors and artists whose names appear on the title page to say nothing of the advisory board of nineteen more, nevertheless we think that the work will fill a very general need. It is by all odds the most thoroughly illustrated work on North American birds that has yet appeared and the great demand for the admirable colored plates of Mr. Fuertes, which

¹ Birds of America. Editor-in-Chief, T. Gilbert Pearson; Consulting Editor, John Burroughs; Managing Editor, George Glidden; Associate Editor, J. Ellis Burdick; Special Contributors, Edward H. Forbush, Herbert K. Job, William L. Finley and L. Nelson Nichols. Artists, L. A. Fuertes, R. B. Horsfall, R. I. Brasher and Henry Thurston. The University Society Inc. New York (1917). Vol. I, pp. i-xviii, + 1-272; Vol. II, pp. i-xiv, + 1-271; Vol. III, pp. i-xviii, + 1-289. 4to, numerous illustrations, and 110 colored plates. Comprising Volumes I-III of the 'Nature Lovers' Library'.

appeared in Eaton's 'Birds of New York,' indicated pretty clearly what the bird-studying public wants, for it is far easier to identify birds from good colored plates than from any amount of descriptions. The publishers of the present work have been fortunate in obtaining these same plates through the courtesy of the New York State Museum, and they naturally form one of the leading features of the volumes. Mr. Henry Thurston has contributed a series of five colored plates of birds' eggs which are very satisfactory. Then there are a large number of half-tone text figures of birds from colored drawings by Mr. R. I. Brasher which vary considerably in merit, but they are all minutely exact in patterns and markings and are therefore often of greater value for purposes of identification than certain much more artistic and lifelike bird portraits. Besides all of these there are a very large number of reproductions of photographs mainly from nature but some from mounted specimens, although the fact is not always mentioned, and some of paintings by Mr. Bruce Horsfall. Most of this last group of illustrations have already appeared in other publications and are from a variety of sources.

We regret that the publishers have seen fit to adopt the name of Audubon's classic work as their title. Every work must stand upon its own merits and it is a pity that each one cannot have a distinctive name. In one respect the present work is like its great predecessor — that is in the unequal treatment of the birds of the two sides of the continent. Audubon of course did not possess adequate information on western birds but in the present case that excuse does not exist and we fear that western ornithologists will resent the fact that while all of the eastern birds are figured in colors not one of the distinctively western species is so depicted, most of them being pictured only in half-tones and quite a number not at all. The superabundance of figures of some of the eastern species on the other hand seems unnecessary, if not actually confusing. With Fuertes' excellent full page plate of the Blue Jay, it is quite unnecessary to publish a figure by Brasher which shows nothing additional, to say nothing of a very poor photograph of what is apparently a mounted bird.

However these criticisms in no way detract from the fact that this work places within reach of the public a splendid series of bird pictures, more and better than can be gotten today in any other work, which will go far to satisfy the needs of a vast number of bird students and no doubt help to develop many a future ornithologist.

The text is admittedly, in the main, compiled, and most of the accounts are satisfactory, presenting concisely such information as one would desire on habits, range, food, etc. The best accounts are probably those by Herbert K. Job and Edward Howe Forbush. The nomenclature is that of the American Ornithologists' Union Check-List and subspecies are only mentioned at the end of each account, where the points by which they differ are briefly stated and their ranges given, often too briefly to be of much practical value. Curiously enough the name of the eastern race is always given in the heading. This may be logical where, as is usually the case,

it is the so called 'typical' form, as for instance *Planesticus migratorius migratorius*, for the Robin, but in the case of the Hermit Thrush it would seem more consistent to have headed the text with *Hylocichla guttata guttata* than with *H. g. pallasi*. This however simply shows the need that has recently been emphasized of a binomial nomenclature for popular ornithology and a vernacular name for each binomial group. Then we should have had for a heading in the case referred to *Hylocichla guttata* the Hermit Thrush, and if subspecies were to be mentioned at all, their trinomial names could have been given in the end of the text along with their characteristics and ranges. This is a fault of the A. O. U. Check-List, however, and not of 'The Birds of America.'

At the head of each account is given a list of vernacular names; a general description and detailed account of coloration; a description of the nest and eggs; and the range of the bird. This information is taken from Ridgway's 'Birds of North and Middle America' and the A. O. U. 'Check-List,' popularized where necessary by the alteration of technical terms. There are several color keys at the end of the work, a glossary and a bibliography. The last is rather an unfortunate effort, as remarkable for what it omits as for what it includes and with no indication of what the various books treat. There should at least have been a geographical list of works on the bird life of the several states, since the first thing the general reader will desire, after having his interest aroused by a work of this kind, is a special publication on the birds of his own region.

The paper upon which the work is printed is heavily sized in order to carry the large number of half-tone figures, which makes it exceedingly heavy, but the typography is good and the printing of both text and plates well done as is also the binding, making all in all an exceedingly attractive work.—W. S.

'Tropical Wild Life in British Guiana.'¹—This volume published by the New York Zoological Society, presents the results of the first season's work at the tropical research station, established in British Guiana under the direction of William Beebe and conducted by him from March to August, 1916. The enterprise marks an innovation in tropical zoological research, making possible the study of living or freshly killed tropical animals in their native haunts, whereas heretofore field work has of necessity been mainly limited to securing and preserving specimens to be studied by specialists in museums, far distant from the home of the animals them-

¹Tropical Wild Life in British Guiana. Zoological Contributions from The Tropical Research Station of The New York Zoological Society. By William Beebe, Directing Curator, G. Inness Hartley, Research Associate and Paul G. Howes, Research Assistant, with an Introduction by Colonel Theodore Roosevelt. Volume I. Photographs and Other Illustrations by the Authors. Published by the New York Zoological Society, 111 Broadway, New York City. January, 1917 [distributed in November]. 8vo. pp. i-xx + 1-504, 4 colored plates and numerous half-tone illustrations.

selves. It is in fact an extension of the idea of the marine zoölogical laboratory, made familiar by the Wood's Hole and other stations.

The practicability of the plan may be realized when we read of the commodious and thoroughly equipped laboratory and dwelling which Mr. Beebe and his companions established, and in which they carried on their researches, on the very edge of the jungle and yet with no more inconveniences than would be met with in similar establishments in the United States — working hard “day after day, month after month, unpoisoned, unbitten and in good health.”

The work is divided into four parts: I. General and Ecological, by William Beebe; II. Ornithological, by G. Inness Hartley; III. Entomological, by Paul G. Howes; and IV. Supplementary Chapters — on the Hinterland of Guiana, by Rev. Walter G. White and on Indian charms by James Rodney. Mr. Beebe's narrative chapters are extremely interesting and give one an intimate picture of life in the jungle, while they teem with important ornithological information. At one point the birds are arranged according to their vertical habitat in the forest, at another brilliancy of plumage is considered in its relation to intensity of light. Protective coloration naturally comes in for considerable attention and in this connection Mr. Beebe adopts the apparently original criterion of regarding a bird as not protectively colored — “at least in its own intensive estimation” — if it takes immediate flight on the approach of a supposed enemy; while the bird is so protected which attempts concealment by squatting or “freezing”. Emphasis is placed upon the need of an intimate knowledge of the natural environment and habits of a species before any judgment is possible as to the protective value of its coloration.

The habits of the Hoatzin are described with great detail with photographs of the nest and eggs and the downy nestlings climbing about “on all fours” as it were.

Our knowledge of the nest, eggs and young of the Toucans has been as Mr. Beebe well puts it, “almost a blank”; and yet he was able in two months time to obtain data on the nidification, of five species and to study carefully the development of the young. They have curious thickened heel pads armed with conical tubercles by means of which they are able to drag the body along, the toes remaining functionless for quite a long time. Similar heel pads have been noted in other birds which nest in holes, and which probably have a similar method of locomotion during their nestling stage. The nesting habits of the Tinamous of the genus *Crypturus*, as described, are most interesting. The male, it seems, makes the nest and attends to all the duties of incubation, the female's entire interest in the matter being to deposit the egg, after which she departs possibly to perform the same favor for some other male who has a nest ready. The male having hatched the single egg prepares another nest and awaits “another temporary mate of advanced feministic views.” The process seems to be continuous.

Mr. Hartley's contributions to the volume consist of laboratory studies

covering the development of the Jacana and Ani and elaborate studies of the development of the several parts of the bird's wing, from embryo to adult, in a number of species. There is also a study of a Grey-breasted Martin colony which occupied a box near the laboratory.

One must read the book to appreciate the amount of interesting and suggestive data that it contains. With such results in the first season we may confidently look for greater success in the future, and with the experience gained in 1916 Mr. Beebe should be able to plan definitely for the solution of certain problems when he makes his next visit to "Kalakoon House." The science of zoölogy and ornithology in particular is deeply indebted to the six members of the New York Zoölogical Society whose liberality made the establishment of this station possible, while hearty congratulations are due Mr. Beebe and his staff upon the manner in which they have availed themselves of the opportunities that were offered them.—W. S.

Catalogue of the Childs Library.¹—In this handsomely printed volume Mr. John Lewis Childs presents a catalogue of his well known library. Nearly one third is devoted to ornithological works, following which are the parts relating to various other branches of natural history. Mr. Childs' series of large illustrated folios is very complete, including the Shattuck copy of Audubon's 'Birds of America,' Elliot's monographs, Gould's 'Hummingbirds', etc. We notice one unique volume of especial interest, a series of original water colors of the commoner birds of Floral Park, by Alan Brooks and one additional plate depicting their eggs. A large number of separata are listed in the bound volumes of 'Ornithology'. The catalogue will be of especial interest to bibliographers and to those who wish to ascertain the extent of their own desiderata.—W. S.

Preliminary List of the Birds of Tennessee.²—This little pamphlet consists of a list of 270 species with a very brief mention of the character of their occurrence in west, middle and east Tennessee, in three parallel columns. According to the 'fore word' it is compiled to serve as a working basis for the collecting of data from which the Tennessee Ornithological Society expects, in due time, to prepare an authoritative list of the birds of the state. Only English names are used but these follow the nomenclature and order of the A. O. U. 'Check-List'. The list seems well calculated to serve its purpose and presumably the compiler has consulted most of the meagre literature dealing with the birds of Tennessee, but as he states that "the published material consists of a few local lists covering

¹ Catalogue of the North American Natural History Library of John Lewis Childs, Floral Park, New York. Published by John Lewis Childs, Floral Park, New York. 1917. Small 4to, pp. 1-150.

² Preliminary List of the Birds of Tennessee. Compiled by the Tennessee Ornithological Society. 1917. Issued by the Department of Fish and Game, W. D. Howser, State Warden. Nashville, Tenn. 8vo, pp. 1-28.

chiefly the mountainous section," lists covering neighboring States and publications of the U. S. Biological Survey, we cannot help but wonder whether he is familiar with the most important of all the Tennessee lists, that of Saml. N. Rhoads, published in the 'Proceedings of the Philadelphia Academy' for 1895, which furnishes data on no less than 215 species. There is also an interesting paper on Tennessee birds by Bradford Torrey in the 'Atlantic Monthly' for February, 1896.—W. S.

Birds of Carthage, Illinois.¹—Carthage College has published a list of the birds of Hancock County, Ill., compiled by the members of the bird class under the direction of Prof. F. C. Gates. 155 species are listed with the dates on which they were seen. Appended is a list of specimens in the college museum.—W. S.

Swarth and Bryant on the White-fronted Geese of California.²—The writers of this interesting contribution to our knowledge of the American geese were led to make an investigation of the White-fronted Geese of California by the statements of Mr. Geo. Neale and Judge F. W. Henshaw, to the effect that there were two forms of these birds, a large one and a small one. Subsequently specimens were presented by the same gentlemen to the Museum of Vertebrate Zoölogy at Berkeley, Cal., which fully substantiated their claim. A thorough examination of a large number of birds, as well as the literature of the subject, has led the authors to the following conclusions. The existence of two perfectly distinct races of White-fronted Geese in North America has been overlooked by all writers on the subject and the discrepancy in the size of certain individuals has caused doubt as to the validity of the race *gambeli* as distinct from *albifrons* of the Old World. As a matter of fact the former was based on the large American bird while the smaller form, which seems to be by far the commoner is nothing more than the true *albifrons* hitherto supposed to be restricted to the Old World except as a doubtful straggler to Greenland. The authors have done a good piece of work and the only fault that we have to find with their paper is the rather careless use of the word "species" when they mean subspecies. The term "form" seems to be the only word available where we are forced to discuss both species and subspecies at the same time. Possibly this ambiguity may have had something to do with the apparent perplexity of a reviewer in a recent issue of 'The Oölogist' who charges the authors with describing a new subspecies, a "crime" which they studiously avoided.—W. S.

¹ Bird Number. Carthage College Bulletin. Vol. III, No. 11. April, 1917, pp. 8.

² A Study of the Races of the White-fronted Goose (*Anser albifrons*) Occurring in California. By H. S. Swarth and Harold C. Bryant. Univ. of Cal. Publications in Zoölogy. Vol. 17, No. 11, pp. 209-222. October 19, 1917.

Oberholser on the Subspecies of Leach's Petrel.¹—No less than three petrels of this group have been described from the western coast of North America.—*Oceanodroma kaedingi*, *beali* and *beldingi*. Difference of opinion has prevailed as to their relationship to one another as well as to *O. leucorhoa*. After the study of a large series of specimens including the types of all the west coast forms, Mr. Oberholser comes to the conclusion that true *leucorhoa* is found in the North Pacific as well as in the Atlantic. That *O. beali* is recognizable as a smaller subspecies ranging from southeastern Alaska to California and that *O. kaedingi* is a still better marked subspecies occurring off the coast of Lower California. *O. beldingi* he cannot separate from *beali*. It will be interesting to see whether his conclusions will be endorsed by others or whether a still different conclusion will be reached by the next student of the group. Certainly he has presented the most careful and detailed study that has yet been offered.—W. S.

Oberholser on Birds from Islands in the Java and China Seas.—The first of these papers² covers collections from four islands, Solombo Besar, Arends, Pulo, Mata Siri and Pulo Kalambau. Fourteen new forms are described as well as one new genus, *Perissolalage* (p. 182) type *P. chalepa* sp. nov., from Solombo Besar, based on a single female. Another more extended paper³ treats of the birds of the Anamba Islands, fifty-six in number, of which nineteen are new subspecies here described for the first time. All the collections were made by Dr. W. L. Abbott.—W. S.

Paxson on the Last of the Wild Pigeon in Bucks County, Pennsylvania.⁴—Col. Paxson has spent much time in gathering the data contained in this interesting paper and is to be congratulated upon publishing it and thus placing it on permanent record. Upon glancing over the pages we realize what an amount of information can be gathered by interviewing old pigeon trappers and hunters, and are surprised that more intelligent research along these lines has not been conducted. Some of the information gathered in this manner is probably of no great value but much of it is extremely interesting and when we realize that not only is the last pigeon dead, but that every year the men who formerly hunted the bird are becoming fewer and fewer, we appreciate work of the sort that has resulted

¹ A Review of the Subspecies of the Leach Petrel, *Oceanodroma leucorhoa* (Vieillot). By Harry C. Oberholser. Proc. U. S. Nat. Mus., Vol. 54, pp. 165-172. Published October 19, 1917.

² Birds Collected by Dr. W. L. Abbott on Various Islands in the Java Sea. By Harry C. Oberholser. Proc. U. S. Nat. Mus., Vol. 54, pp. 177-200. November 2, 1917.

³ The Birds of the Anamba Islands, Bull. 98, U. S. Nat. Mus., pp. 1-75, June 30, 1917 [not received until November.]

⁴ The Last of the Wild Pigeon in Bucks County. A Paper by Henry D. Paxson. Read at the Fall Meeting of the Bucks County Historical Society, held at Chalfont, Bucks County, Pennsylvania, Tuesday, October 22, 1912. [Printed October, 1917.] 8vo, pp. 1-18.

in the little pamphlet before us, and wish that others would take steps to gather together their local Wild Pigeon lore before it is too late. A half-tone plate figures the Cincinnati pigeon, the last survivor, shortly before its death, and the last Pennsylvania pigeon shot on October 2, 1895, now in the possession of Mr. George H. Stuart, 3rd.—W. S.

Peters on Birds from Santo Domingo.¹—Mr. Peters spent about two months (February 6–April 11) in 1916, on an ornithological reconnaissance of the northern coast of Santo Domingo, in the interests of the Museum of Comparative Zoölogy. A collection representing ninety-two species was the result and it is described in detail in the present paper. No new forms are proposed but the relationship of the San Domingo birds to allied species is discussed, important field notes are presented and by way of introduction there is a comprehensive review of the literature of the ornithology of the island. Altogether Mr. Peters' paper forms one of the most important contributions to our knowledge of the bird life of this rather neglected island.—W. S.

Recent Papers by Gyldenstolpe.²—In the 'Arkiv för Zoologi' of the Swedish Academy, Nils Gyldenstolpe has published an account of collections of birds from Bukit Tangga and Lower Perak in the Malay Peninsula and another important article on the heel pads on the tarsus of various birds—Toucans, Woodpeckers, etc., with drawings showing the extent of their development.—W. S.

Cary's 'Life Zone Investigations in Wyoming.'³—This report is based upon the field work of the author since 1909 as well as that of numerous other members of the Biological Survey. The greater part is devoted to a detailed consideration of the several life zones of the state; their boundaries, subdivisions and characteristic animals and plants.

The bird matter is restricted entirely to the lists of breeding species under the several zones, but there is an annotated list of the trees and shrubs at the end of the report. An excellent colored faunal map completes what will be a most welcome and helpful publication to anyone undertaking scientific field work of any kind in Wyoming.—W. S.

Third Report of the Meriden Bird Club.⁴—The report of this well known club of which Mr. Ernest Harold Baynes is the General Manager —

¹ Birds from the Northern Coast of the Dominican Republic. By James L. Peters. Bull. Mus. Comp. Zool., Vol. LXI, No. 11. October, 1917. pp. 391–426.

² On Birds and Mammals from the Malay Peninsula. By Nils Gyldenstolpe. Arkiv. för Zoologi. K. Svensk. Vet. Akad. 10, No. 26. pp. 1–31. February 8, 1917.

³ Life Zone Investigations in Wyoming. By Merritt Cary. North American Fauna, No. 42 Biological Survey, U. S. Dept. of Agriculture. October 3, 1917. pp. 1–95, map and numerous half-tone illustrations.

⁴ Third Report of the Meriden Bird Club. 1916. 8vo, pp. 1–108 + 6.

the parent of 'Bird Clubs' in fact, is always interesting. In this issue we find a full account of the Masque Sanctuary written especially for the Meriden Club by Percy MacKaye, first performed at Meriden on September 12, 1913, and since played in many parts of the country. More than anything else in recent years this play seems to have aroused public interest in bird conservation and it will interest everyone to read this account of its inception and production.

Among many other matters interesting to those engaged in the establishment of bird sanctuaries we find in this report a list of no less than 182 bird clubs which directly or indirectly owe their origin to the Meriden Club—a proud record for Mr. Baynes and his associates.—W. S.

Mathews' 'Birds of Australia'.¹—Part V, of Volume VI of Mr. Mathews' work continues the treatment of the Parrots, figuring ten species of *Psephotus* and allied genera. We notice on p. 391 a new subgenus, *Clarkona*, provisionally proposed for *Psephotus varius*, and on p. 408 two new subspecies, *Psephotus varius thela*, from Central Australia, and *P. v. orientalis*, from Underbool.—W. S.

Strong on the Origin of Melanin Pigment in Feather Germs.²—Dr. Strong finds that melanin pigment granules occur occasionally in the so-called cylinder and inner-sheath cells of feather germs from the Common Fowl, and obtains further evidence that this pigment is of epidermal origin.

He found melanophores in the dermal pulp of the feather germs, presumably homologous with the dermal melanophores of the skin. While some of these had processes they did not, apparently distribute pigment to other cells.—W. S.

Bird Conservation in 1917.—The bulky report of the National Association of Audubon Societies must be read by everyone interested in bird protection. When we read the lengthy lists of persons engaged in this work today we are dazed at the progress of the movement. With hundreds of bird clubs being organized in every part of the country, thousands of school teachers introducing instruction on bird protection in their classes, with bird lecturers on the Chautauqua circuits and exhibitions of bird houses, feeding shelves and other paraphernalia on every side, it will soon be as hard to find a person who is not affiliated with bird conservation in some way or other, as it was some years ago to find one who was willing to sign a pledge to abandon the use of birds in millinery.

The movement has certainly gotten far beyond the ability of 'The Auk'

¹ The Birds of Australia. By Gregory M. Mathews. Vol. VI, Part V. September 11, 1917.

² Some Observations on the Origin of Melanin Pigment in Feather Germs from the Plymouth Rock and Brown Leghorn Fowls. By R. M. Strong. Anatomical Record, Vol. 13, No. 2, July, 1917. pp. 97-108.

to properly notice the publications which are appearing in its interests. We can only refer to the regular publications of the various Audubon Societies and Game Protective Associations which are listed in every issue, under 'Publications Received' and limit our notices to the less known or special publications.

Among those before us at present there is a creditable little pamphlet on 'Bird Study' by J. W. Hungate, issued by the State Normal School of Cheyney, Wash., and the attractive 'Year Book' of the Hartford Bird Study Club, Conn., while mention should be made of the Game Laws for 1917, issued by the U. S. Dept. of Agriculture which every hunter must have.—W. S.

Mullens and Swann's Bibliography of British Ornithology.¹—

This valuable work has reached completion by the issue of part six. This together with part five which appeared some months ago contain some exceedingly interesting biographies. Gilbert White, Bowdler Sharp, Tristram, Salvin, Saunders, Seebohm and many others, are familiar names to American ornithologists, and it is a satisfaction to find out something about the details of their lives and achievements.

The complete volume forms a necessary work of reference for every ornithological library, while thanks to the efforts of the publishers, it is a piece of book making of which everyone may well be proud.—W. S.

The Ornithological Journals.

Bird-Lore. XIX, No. 5. September–October, 1917.

The Summer Life of the Virginia Rail. By Verdi Burtch.—With excellent photographic illustrations.

American Egrets in New York City. By Clark L. Lewis, Jr.—Three birds came to Van Cortland Park and remained for a number of weeks, one of them until October 10.

Nesting Habits of the Cliff Swallow. By Manley B. Townsend.—Seem to prefer unpainted buildings but not exclusively.

The plumages of the Barn Swallow and Martin are discussed by F. M. Chapman, with an attractive colored plate by Fuertes.

Bird-Lore, XIX, No. 6, November–December, 1917.

Winter Visitors to City Park, Denver, Colo. By J. D. Figgins.—Excellent photographs of the Bohemian Waxwing.

Taming the Evening Grosbeaks. By Edith K. Dunton.

A Remarkable Martin Roost in the City of Washington. By Harry C. Oberholser.

¹A Bibliography of British Ornithology from the earliest times to the end of 1912. By W. H. Mullens and H. Kirke Swann. Macmillan and Co., Ltd. London, 1917. Parts V and VI.

The Migration of North American Birds. By Harry C. Oberholser. Covers five species of swallows, and continues the work carried on in these pages for several years by the late Prof. Cooke.

Notes on the plumage of North American Birds. By Frank M. Chapman.— Completes the Swallows. An admirable plate by Fuertes accompanies the article.

The Educational Leaflet treats of the Pileated Woodpecker and the bulk of the number is taken up with the annual report of the Audubon Societies.

The Condor. XIX, No. 5. September–October, 1917.

Notes on the Nesting Habits of the Clarke Nutcracker in Colorado. By W. C. Bradbury.

Red Letter Days in Southern California. By Florence Merriam Bailey.

Botta's Visit to California. By T. S. Palmer.— An interesting historical paper fixing more accurately the type localities of the first birds described from California.

Some Birds of the Davis Mountains, Texas. By Austin Paul Smith.— An annotated list of 45 species.

A New Race of Fox Sparrow, from the Vicinity of Mono Lake, California. By Joseph Grinnell and Tracy I. Storer.— *P. i. monoensis*, with a slightly smaller bill than *P. i. megarhyncha* of the western slope of the Sierra Nevada.

The Wilson Bulletin. XXIX, No. 3. September, 1917.

The Birds of Denver. By W. H. Bergtold.— 187 species listed.

Horned Larks in the Province of Quebec. By L. McL. Terrill.

Annotated List of the Water Birds, Game Birds and Birds of Prey, of Sac County, Iowa. By J. A. Spurrell.

The Oölogist. XXXIV, No. 9. September, 1917.

Some Interesting Birds of the Judith Basin, Montana. By P. M. Silloway.

Nesting of the Prairie Horned Lark [in Mass.]. By H. O. Green.

Bendire's Crossbill [Nesting] in Kansas. By A. S. Hyde.

The Oölogist. XXXIV, No. 10. October, 1917.

Bird Collecting in Eastern Colombia. By Paul G. Howes.— Continued in November.

The Ibis. X Series. V, No. 4. October, 1917.

On a New South American Jay of the Genus *Cyanolyca*. By W. L. Slater.— *C. viridicyanea cuzcoensis* from Cuzco (p. 465).

Notes on the Birds of Malta. By G. Despott.— Concluded, total number of species 341.

Birds of the Ancere Valley [France]. By Lt. J. N. Kennedy.

Birds of the Suez Canal Zone and Sinai Peninsula. By Capt. A. W. Boyd.

Further Notes on the Birds of the Province of Fohkien in Southeast China. By J. D. D. La Touche.

The Birds of Dirk Hartog Island and Peron Peninsula, Shark Bay, Western Australia, 1916–17. By T. Carter; with Nomenclature and

Remarks by G. M. Mathews.—*Calamanthus campestris peroni* (p. 586) subsp. nov. *Oreoica cristata lloydi* (p. 608).

Bulletin of the British Ornithologists' Club. CCXXVII. October 30, 1917.

The following new forms are described: By Lord Rothschild, *Melanoperdix nigra borneensis* (p. 3). By Charles Chubb, *Chamaepetes fagani* (p. 4), W. Ecuador; *Penelope brooki* (p. 5) Bæza, Ecuador; *Columba ogilviegranti* (p. 5), Peru. By Dr. Hartert, *Sylvia deserticola maroccana* (p. 6), W. Marocco; *Ardea cinerea firsas* (p. 6), Madagascar; *Æthopyga seheria tonkinensis* (p. 7), Tonkin. By E. C. Stuart Baker, nine forms from India and Siam.

British Birds. XI, No. 4. September, 1917.

Notes on Zonal Distribution in the Mountains of Latium, Italy. By C. J. Alexander.—Five zones are recognized; Mediterranean, Submountain (Chestnut), Mountain (Beech), Subalpine and Alpine. The paper is an important contribution to the zoogeography of Europe.

The Moults and Sequence of Plumages of the British Waders. By Annie C. Jackson. Part II.—Continued in October.

British Birds. XI, No. 5. October, 1917.

Observations on Birds Singing in their Winter Quarters and on Migration. By C. J. Alexander.

British Birds, XI, No. 6, November, 1917.

On Newly Discovered Irish Colonies of Roseate and Sandwich Terns. By C. J. Carroll.

John Hunt. By H. S. Gladstone. A biography.

Avicultural Magazine. VIII, No. 12. October, 1917.

A Visit to the Zoo Eighty Years Ago. By Dr. E. Hopkinson.

The Secretary Bird and Mantell's Apteryx. By Graham Renshaw.—Interesting accounts of these birds in the London Zoo.

The Great Bird of Paradise on the Island of Little Tobago. By Sir Wm. Ingram.—Diary of the caretaker who is looking after the birds which were introduced some eight years ago and which are now reported to have greatly increased.

Avicultural Magazine. IX, No. 1. November, 1917.

Birds in Macedonia. By Capt. B. E. Potter.

The Emu. XVII, Part 2. October, 1917.

The Yellow-breasted Bush-Chat (*Ephthianura crocea*). By A. J. Campbell.—With colored plate.

Ornithologists in North Queensland. By Capt. W. Macgillivray.—Account of an exploration of the open forests on the Claudie River, 1913.

Observations on the Genus *Hylacola* (Ground Wrens). By F. E. Howe.

Australian Ibises. By W. H. D. LeSouef.

The Nestlings of Australian Finches: What do we Know about Them? By G. M. Mathews.

Revue Française d'Ornithologie. IX, No. 100-101. August-September, 1917. [In French.]

Anomalies and Individual Variations in Birds. By E. Anfrie.— Continued in October.

Contribution to a Study of the Changing Habitats of Shore Birds. By M. R. Deschiens.— Continued in October.

Ardea. VI, No. 2. August, 1917. [In Dutch.]

Leguatia gigantea. By A. C. Oudemans.— An extended account of this extinct species.

Messageur Ornithologique. VII, No. 2. [In Russian.]

On the Birds of the Far East. By S. A. Buturlin.— Continued.

Preliminary List of Birds Observed in the Sochi District of the Black Sea Province. By A. Koudashev.

Alauda arvensis kiborti subsp. nov. By I. M. Zaliesski (p. 125).

Ornithological Articles in Other Journals.

Macnamara, C. The Purple Martin. (Ottawa Naturalist, August-September, 1917.)— A detailed study of a colony, at Arnprior, Ont.

Millais, J. G. Brent Geese in Scotland. (Scottish Naturalist, September, 1917.)

Clarke, W. Eagle. Wild Life in a West Highland Deer Forest. (*Ibid.*, November, 1917.)

Beck, Rollo H. Bird Photographing on the Falkland Islands. (American Museum Journal, November, 1917.)— A wonderful series of pictures of Penguins, Gulls, Cormorants, Albatrosses and Sheath-bills taken by Mr. Beck, while collecting sea birds for the Brewster-Sanford Collection at the American Museum of Natural History.

Crandall, Lee S. Our Emu Family. (Zool. Soc. Bulletin, September, 1917.)— Account of the Emus in the New York Zoo.

Crandall, Lee S. The Australian Bird Collection. (*Ibid.*)

Burge, W. E. Comparison of the Catalase Content of the Breast Muscle of Wild Pigeons and of Bantam Chickens. (Science, November 2, 1917.)— Energy for muscular work is generally conceded to be derived from oxidation of food materials. Catalase is an enzyme which liberates oxygen from hydrogen peroxide. The investigation here described showed that the breast muscles of the pigeons which were accustomed to extensive flight liberated far more oxygen than did those of the Bantams which were unaccustomed to flight, while in Pigeons kept in confinement the amount of catalase decreased. This would indicate that catalase "may play a rôle in the oxidative processes of the body." As is frequently the case with those not interested in systematic zoölogy Mr. Burge gives one no idea what his "wild pigeons" may have been. They were certainly not the bird popularly known by that name.

McMahon, Walt F. The Protection of America's Bird Life. (Forest and Stream, November, 1917.)

Oberholser, H. C. Diagnosis of a New Pycnonotine Family of Passeriformes. (Jour. of the Washington Academy of Sciences, VII, No. 17.)—

Irenidæ, fam. nov. *Glaucomorpha* (p. 53) gen. nov. for *Irena cyanea*; *G. c. megacyanea* (p. 540) subsp. nov. from Pulo Tuanku, Banjak Islands.

Curtis, W. P. The coloration Problem II [*Picus* et al.]. (Entom. Rec. & Jour. Variation July, 1917.)

Cookman, Alfred. The Sharp-shinned Hawk of the San Gabriel Mountains [Cal.]. (Lorquinia, II.)

Hartert, Ernst and Goodson, Arthur. Notes and Descriptions of South American Birds. (Novit. Zool., XXIV, pp. 410-419.) Sixteen new forms of *Cotingidæ*, *Tyrannidæ* and *Dendrocolaptidæ*.

Hartert, Ernst. *Scolopax rusticola*. (*Ibid.*, p. 437.) — Figured.

Hartert, Ernst. On the Forms of *Coturnix coturnix*. (*Ibid.* pp. 420-425.) — Three new forms among the eight recognized: *C. c. inoperata* (p. 422), Cape Verde; *C. c. confisa* (p. 423), Madeira; and *C. c. conturbans* (p. 423), Azores.

Dickinson, Mrs. W. G. Notes of an Amateur in Ceylon. (Bird Notes, September, 1917.)

Selous, Edmund. Sexual Selection in Birds. Breeding Habits of the Ruff. (Wild Life, August, 1917.)

FitzSimons, F. W. Our Native Birds: Their Value to Man. (The South African Journal of Science, 1916, pp. 366-372.)

King, James. Bird Life in the Midlands of Natal. (*Ibid.* pp. 362-365.)

Roberts, Austin. Ornithological Notes. (Annals of the Transvaal Museum, V, pp. 246-262.) — The following new forms are described: *Spinus symonsi* (p. 257) Basutoland—first described in a separate slip supplementary to Vol. V, No. 3, January 1916. *Mirafr africanaoides harei* (p. 258), Windhuk, Demereland; *Phyllastrephus terrestris rhodesiæ* (p. 258), Machile River, N. W. Rhodesia; *Andropadus importunus noomei* (p. 259), Hænertsburg, N. E. Transvaal.

Roberts, Austin. Descriptions of a New Species and Genus of Flycatchers from East Africa, and two New Subspecies of Guinea Fowls from South Africa. (*Ibid.* VI, pp. 1-3.)—*Chloropetella* (p. 1); *C. suahelica* (p. 1), Myiai, German East Africa; *Numida papillosa damarensis* (p. 2), Windhuk, S. W. African Protectorate; *Guttera edouardi symonsi* (p. 3), Karkloof, Natal.

Mazza, F. On the Capture of two birds unusual in the Provence of Rome in 1916. (Boll. Soc. Zool. Ital. XII, pp. 191-197.) [In Italian.]

Jungersen, Hector F. E. Two Cases of *Pseudohermaphroditism* in Male Pigeons (*Columba domestica*) (Videnskabelige Meddelel. Kjtbenham, LXVIII, pp. 7-22). [In English.]

Publications Received.—**Anderson**, R. M. Recent Explorations on the Canadian Arctic Coast. (Geographical Review, IV, No. 4, pp. 241-266, October, 1917.)

Beebe, William, Hartley, G. Inness, and Howes, Paul G. Tropical Wild Life in British Guiana. Vol. I. N. Y. Zoölogical Society, 1917, Svo, pp. 1-504, numerous illustrations. Price, \$3.00.

Bergtold, W. H. The Birds of Denver. An Annotated List. (Wilson Bull., No. 100, pp. 113-129, September, 1917.)

Cary, Merritt. Life Zone Investigations in Wyoming. North American Fauna, No. 42, pp. 1-95, U. S. Dept. Agr., October 3, 1917.

Childs, John Lewis. Catalogue of the American Natural History Library of John Lewis Childs. Small 4to, pp. 1-150, 1917.

Herrick, Francis H. Audubon the Naturalist. A History of his Life and Time. Two volumes, 8vo, pp. 1-451 and 1-494. D. Appleton & Company, 1917. Price, \$7.50.

Howser, W. D. Preliminary List of the Birds of Tennessee. Bull. No. 2, pp. 1-28. Dept. of Game and Fish, Nashville, Tenn., 1917.

Lawyer, G. A., Bancroft, W. F., Earnshaw, F. L. Game Laws for 1917. Farmers' Bulletin 910, U. S. Dept. Agr., October, 1917, pp. 1-70.

Lewis, J. C. Some Considerations on Sight in Birds. (Smithsonian Rept. for 1916, pp. 337-345, reprinted from 'The Emu,' 1916.)

Mathews, Gregory M. The Birds of Australia. Vol. VI, Part V, pp. 373-444, September 11, 1917.

Meriden Bird Club. Third Report, pp. 1-107, 1916.

Oberholser, Harry C. (1) A Review of the Subspecies of the Leach Petrel, *Oceanodroma leucorhoa* (Vieillot). (Proc. U. S. Nat. Mus., Vol. 54, pp. 165-172, October 19, 1917.) (2) Birds Collected by Dr. W. L. Abbott on Various Islands in the Java Sea. (*Ibid.*, pp. 177-200, November 2, 1917.) (3) Birds of the Anamba Islands. Bull. 98 U. S. Nat. Mus., pp. 1-75, June 30, 1917. [Not received until December 6.]

Paxson, H. D. The Last of the Wild Pigeon in Bucks County (Penna.). pp. 1-18. Privately printed, October, 1917.

Pearson, T. Gilbert, and others. Birds of America. Vols. I-III, 4to, pp. 1-272, 1-271 and 1-289, numerous colored plates and text figures. issued as part of the Nature Lovers' Library, University Society Inc. New York. Price for whole series of Library, six volumes, \$28.

Peters, Jas. L. Birds from the Northern Coast of the Dominican Republic. (Bull. Mus. Comp. Zool., Vol. LXI, No. II, pp. 391-426, October, 1917.)

Sclater, W. L. On a New South American Jay of the Genus *Cyanolyca*. (Ibis, October, 1917, pp. 465-466.)

Strong, R. M. Some Observations on the Origin of Melanin Pigment in Feather Germs from the Plymouth Rock and Brown Leghorn Fowls. (Anatom. Record, Vol. 13, No. 2, pp. 97-108, July, 1917.)

Swarth, H. S. and Bryant, H. C. A Study of the Races of the White-fronted Goose (*Anser albifrons*) Occurring in California. Univ. of Cal. Publ. in Zool., Vol. 17, No. 11, pp. 209-222, October 19, 1917.

American Museum Journal, The, XVII, No. 7, November, 1917.

Avicultural Magazine, (3), VIII, Nos. 11 and 12, IX, No. 1, September-November, 1917.

Ardea, VI, No. 2, August, 1917.

Bird-Lore, XIX, Nos. 5 and 6, September-December, 1917.

Bird Notes and News, VII, No. 7, Autumn, 1917.

British Birds, XI, Nos. 4, 5 and 6, September-November, 1917.

Bulletin, British Ornithologists' Club, No. CCXXVII, October 30, 1917.

- Bulletin** Charleston Museum, XIII, No. 6, October, 1917.
Bulletin State Normal School, Cheney, Wash., B. No. 1, September, 1917.
California Fish and Game, III, No. 4, October, 1917.
Carthage College Bulletin, III, No. 11, April, 1917.
Condor, The, XIX, No. 5, September-October, 1917.
Current Items of Interest, No. 34, October, 1917.
Emu, The, XVII, Part II, October, 1917.
Fins, Feathers and Fur, No. 11, September, 1917.
Forest and Stream, LXXXVII, Nos. 10-11, and 11, October and November, 1917.
Glasgow, Naturalist, The, IV and V, 1912 and 1913.
Ibis, The, (10), V, No. 4, October, 1917.
Journal Cincinnati Soc. Nat. Hist., XXII, No. 2, November, 1917.
Messenger Ornithologique, XI, No. 2, 1917.
New Jersey Audubon Bulletin, No. 22, November, 1917.
Oölogist, The, XXXIV, Nos. 9, 10, and 11, September-November, 1917.
Ottawa Naturalist, The, XXXI, No. 5-6, August-September, 1917.
Philippine Journal of Science, The, XII, Sect. D., Nos. 1, 2, and 3, January, March and May, 1917.
Proceedings Academy Nat. Sci. Phila., LXIX, Part II, April-September, 1917.
Records of the Australian Museum, XI, No. 11, October, 1917.
Revue Française d'Ornithologie, Nos. 100-101, and 102, August-October, 1917.
Science, N. S., LXVI, Nos. 1186-1198.
Scottish Naturalist, The, Nos. 69, 70 and 71, September-November, 1917.
Wilson Bulletin, The, XXIX, No. 3, September, 1917.
Zoological Society Bulletin, XX, No. 5, September, 1917.

CORRESPONDENCE.

EDITOR OF 'THE AUK':

In the notice of Lloyd-Jones's paper on feather pigments in the last April number of 'The Auk' (Vol. XXXIV, p. 232) there is one statement which might be misleading, and I should accordingly like to put on record a somewhat fuller statement of the point in question. Speaking of the so-called blue color of domestic pigeons the review states that "blue as in all birds is a structural color." It is true spectral blue in all birds is a structural color, for as Lloyd-Jones says: "No blue pigment substance has ever been discovered in the integument of higher vertebrates." The point is, to quote further: "The color called 'blue' in domestic pigeons has very little claim to that name. It is not at all comparable to the blue of the bluebird, jay or indigo bird, but resembles more the so-called blue of the rabbit or maltese of the cat. In other words, the color belongs more properly among the grays than among the blues. The 'gull-gray' of Ridgway ('12, plate 53) is a fair representation of the blue of the domesticated pigeon. Typical spectrum blue, however, is found among tropical members of the pigeon family," and there it is doubtless due to structural causes. The 'blue' of the domestic pigeon is then merely a neutral tint such as might be produced by a layer of soot on snow, or by any intimate mixture of black and white. In the pigeon "the blue effect is produced by a layer of pigment-free material intervening between the eye [of the observer] and the pigment mass" in the barbule cell of the feather.

Sincerely,

LEON J. COLE.

University of Wisconsin, Nov. 1, 1917.

NOTES AND NEWS

LYMAN BELDING, a Retired Fellow of the American Ornithologists' Union died at Stockton, Calif., Nov. 22, 1917. He was born at West Farms (Northampton), Mass., June 12, 1829, and at the time of his death was nearly eighty-eight and a half years old. He was the oldest member of the Union and the oldest American ornithologist.

Mr. Belding became interested in birds about 1876 and during the next 20 years was prominently identified with field work in California and Lower California. In 1879 he published 'A Partial List of the Birds of Central California' containing notes on 220 species. Two years later he made a trip to Cerros Island and San Quentin Bay, L. C. In the winters of 1881-82 and 1882-83 he made two trips to the Cape region of Lower California where he collected the types of several new birds and added much to our knowledge of the avifauna of the region. The results of these trips appeared in several papers in 1883 in the Proceedings of the U. S. National Museum. Upon the organization of the American Ornithologists' Union he was selected by the Committee on Bird Migration to take charge of the migration work in the Pacific District. For two or three years he carried on this work actively and the results were published in 1890 in his well known 'Land Birds of the Pacific District'. A corresponding volume on the 'Water Birds of the Pacific District' was prepared but never published and the manuscript is now deposited in the Bancroft Library of the University of California.

Mr. Belding's field work in California was done mainly in the vicinity of San Diego, Gridley, Marysville, Stockton, and in the Sierras in Calaveras and Placer counties. Among the birds which bear his name are Belding's Jay (*Aphelocoma californica obscura*), *Geothlypis beldingi*, *Oceanodroma beldingi*, *Passerculus beldingi* and *Rallus beldingi*. He was elected an Active Member of the American Ornithologists' Union at the first meeting in 1883 and he was placed on the list of Retired Fellows in 1911. In 1896 he was made an Honorary Member of the Cooper Ornithological Club. His portrait was published in 'The Condor' in 1900 (vol. II, p. 2).

In accordance with the custom of recent years an address on his life and work will be presented at the next meeting of the Union. The President of the Union has appointed Dr. A. K. Fisher to prepare this memorial.—T. S. P.

DR. HENRY MCHATTON, of Macon, Ga., an Associate of the American Ornithologists' Union since 1898, died of pneumonia on April 22, 1917, shortly after returning from Florida where he had spent the winter. Dr. McHatton was born at Baton Rouge, La., on the 29th of February, 1856. His parental home was a large sugar plantation on the Mississippi River just south of Baton Rouge, but on account of conditions brought about by the Civil War the family was forced to leave this home when he was seven years old. From Louisiana they traveled by wagon through Texas to the Mexican border, several months being occupied in making the trip. From northern Mexico Dr. McHatton's father went to Cuba, where he again took up his business of sugar growing. After the ten years' war in Cuba and the death of his father, Dr. McHatton returned to the United States, going to New York City, where he studied medicine and graduated from the old Bellevue College of Medicine in 1881. On account of his health he moved in 1883 to Macon, Ga., where he took up the practice of his profession.

Through the varied experiences of his youth the love of out doors was intensified as years went by. He was always interested in anything pertaining to ornithology and a personal knowledge of the habits of birds, animals and fish was a source of constant pleasure to him. He was an officer of the original Audubon Society of Georgia which was reorganized a few years ago. In his death the game and fish of Georgia lost a great friend.—T. H. McHatton.

ORNITHOLOGICAL WORK IN 1917.¹—At the recent meeting of the Union an hour was devoted to a consideration of 'Ornithological Work in 1917' for the purpose of reviewing briefly the activities of the year. While war conditions have necessarily curtailed activity in various directions and especially in field work, the review showed that much had been accomplished although most of the published work was necessarily based on investigations made in previous years.

Field Work. Of chief interest is the work accomplished by several of the museums through expeditions and special collectors.

The Museum of Vertebrate Zoölogy of Berkeley, Calif., devoted its attention chiefly to the southwest. H. S. Swarth visited southern Arizona and obtained material for a report on the birds found on the Apache Trail, while Grinnell and Dixon spent some time in the Death Valley region in California. In the north W. E. C. Todd was in the field five months in charge of the Carnegie Museum Expedition to northern Quebec. In tropical America the activity of previous years has decreased with the return of the American Museum Expeditions from South America but one party, comprising Messrs. Miller, Griscom and Richardson, spent four months collecting

¹ The following summary is based on a discussion of the subject in which A. A. Allen, Frank M. Chapman, H. K. Job, H. C. Oberholser, T. Gilbert Pearson and the Secretary took part. Extended titles and references to papers are omitted as most of the publications here mentioned are reviewed in the volumes of 'The Auk' for 1917 or 1918.

for the Museum in Nicaragua. In the West Indies, Haiti and San Domingo have been the center of attraction. W. L. Abbott, Rollo H. Beck, and Paul Bartsch visited the island at different times and each secured some remarkable birds or made substantial additions to our knowledge of the local avifauna. In South America Beebe spent some time at the tropical laboratory near Georgetown, British Guiana, and Beck returned from southern Patagonia with rich collections of sea birds. From the Orient the American Museum Expedition to China, Yunnan, and northern India in charge of Roy C. Andrews returned after successfully completing its field work, and from Celebes, H. C. Raven sent some valuable collections of birds to the U. S. National Museum.

In the United States the work of the Biological Survey has been carried on with the usual activity in a number of States. In the south A. H. Howell continued his field studies of the birds of Alabama and Francis Harper visited the Okefinokee Swamp in Georgia and the everglade region in Florida. In the west H. H. T. Jackson began work on a biological survey of Wisconsin and H. C. Oberholser investigated the breeding ground of waterfowl in North Dakota. In Montana E. A. Preble collected in the southeastern part of the state south of the Northern Pacific Railroad, and Mr. & Mrs. Vernon Bailey spent some weeks studying the birds of the Glacier National Park and collected material for a report to be issued in coöperation with the National Park Service. In the Northwest preliminary work on a biological survey of Washington was begun by W. P. Taylor and in the southwest E. A. Goldman collected in northern Arizona south of the Grand Canyon.

Economic Ornithology. Studies of the food of birds, especially ducks, and of methods of attracting birds have been continued by W. L. McAtee, a new study of the crow has been made by E. R. Kalmbach and the European Starling has been the subject of an investigation by Kalmbach and Gabrielson. A report on the game birds of California by Grinnell, Bryant and Storer has been completed and is now in press. In the field of experimentation much work has been done by H. K. Job at Amston, Conn., at the Bird Experiment Station of the National Association of Audubon Societies.

Literature. The publications of the year, while perhaps fewer in number than those for some years immediately preceding the war, include a number of important titles. Among general works should be mentioned the annual volume of the 'Zoölogical Record' for 1915 containing 934 titles on birds, Ridgway's 'Birds of North and Middle America,' Vol. VIII, devoted to Shorebirds, Gulls and Terns (the manuscript has been completed but not printed), Mathews' great work on the 'Birds of Australia' of which five parts of Vol. VI have recently appeared, the seventh edition of Mrs. Bailey's 'Handbook of the Birds of the Western United States,' and a popular work in three volumes on the 'Birds of America,' edited by T. Gilbert Pearson and published in the Nature Lovers' Library. Of the many faunal publications, Chapman's comprehensive volume on the 'Dis-

tribution of Bird Life in Colombia' is probably the most important, while Beebe's 'Tropical Wild Life in British Guiana,' and W. S. Brooks' Notes on 'Falkland Island Birds,' based on the work of the Phillips Expedition of 1915-16, furnish glimpses of the avifauna of the extremes of the South American continent. Two important reports on insular bird life off the North American coast are Howell's 'Birds of the Islands off the Coast of Southern California' and Hanna's paper on the 'Birds of St. Matthew Island' in Bering Sea. Among the numerous papers on the birds of the Eastern Hemisphere, Despott's 'Notes on the Ornithology of Malta', Captain Sladen's 'Notes on Birds observed in Macedonia', Selater's 'Birds of Yemen, southwest Arabia', Oberholser's 'Birds of Bawean Island, Java Sea', and 'Birds of the Anamba Islands in the China Sea'. H. L. White's account of North Australian Birds' and J. P. Chapin's 'Classification of Weaver Birds' merit special mention. The more technical papers comprise Richmond's third supplement to Waterhouse's 'Index Generum Avium', containing 600 'Generic Names applied to Birds during the years 1906 to 1915 inclusive', Oberholser's series of 'Notes on North American Birds', and Wayne's 'List of Species for which South Carolina is the type locality'. Bergtold's extended 'Study of the Incubation Periods of Birds' and Casey A. Wood's 'Fundus Oculi of Birds' are notable contributions to little cultivated fields of ornithological literature. Avian anatomy has received some attention in Wetmore's 'Secondary Characters in the Ruddy Duck' and Petronievic and Woodward's paper 'On the Pectoral and Pelvic Arches of the British Museum Specimen of *Archæopteryx*' (P. Z. S. pp. 1-6). New light has been thrown on some of the extinct birds of the United States by Matthew and Granger's description of 'The Skeleton of *Diatryma*' from the Eocene of Wyoming, and Shufeldt's accounts of Fossil Birds from Vero, Florida. In the department of biography the record of the year is rather remarkable. Here should be mentioned J. A. Allen's notable 'Autobiography' (printed in 1916 but not generally distributed until early in the present year) Herriek's 'Audubon the Naturalist', in two volumes, and the final parts of Mullens and Swann's 'Bibliography of British Ornithology'.

Educational Work. A notable feature of ornithological work of the twentieth century is the ever increasing attention given to bird study in the schools and colleges. As an aid to beginners in this subject Pearson has prepared a useful and instructive 'Bird Study Book'. Foremost in the educational field is the National Association of Audubon Societies which during the year has organized 11935 Junior Audubon Classes in which instruction on birds has been given to 261,654 children in the United States and Canada. The Association has also arranged for courses in bird study in 11 Summer Schools including the Maryland Agricultural College, University of Virginia, Summer School of the South at Knoxville, Tenn., the State Universities of Colorado, Florida, Georgia, Mississippi, South Carolina and Vermont and several other institutions. A course in ornithology was given this year at the summer Biological Station of the

University of Michigan. Cornell University, which for several years has given credit for ornithology in undergraduate work, now includes bird work in graduate courses leading to the degree of M. S. and Ph.D., has established a course of instruction in game breeding, and at the recent session of the legislature secured an appropriation of \$15,000 for a game farm to be administered along educational and experimental lines.

Legislation. Among the 250 or more game laws enacted in the United States in 1917 by the various state legislatures are many that affect birds. A strong tendency has been manifested to suspend the shooting of certain game birds for several years. The Sage Grouse has been protected at all seasons in about half of its present range and similar protection has been given Prairie Chickens in Idaho, Iowa, and Oklahoma; Quail in Idaho, Iowa, Nebraska and Ohio; Woodcock in eight states in the Mississippi Valley; and all shore birds except Jacksnipe in California. Stringent plumage laws in Oklahoma now forbid the sale of aigrettes and in California prohibit traffic in aigrettes, Birds of Paradise, Goura Pigeons and Numidi. A general effort has been made to bring the state laws into conformity with the Federal migratory bird regulations and in twenty-one states the open seasons on waterfowl are now practically uniform with the Federal seasons. This has resulted in general prohibition of spring shooting. A law to carry into effect the provisions of the treaty protecting migratory birds, ratified last year, has been passed by Canada and a similar enabling act to carry the treaty into effect in the United States has passed the Senate and is now awaiting action by the House of Representatives at the present session of Congress.—T. S. P.

THE LIST OF FELLOWS OF THE A. O. U.—The election of Percy A. Taverner to fill the only vacancy in the list of Fellows at the recent meeting of the Union recalls the fact that although the number of Fellows has always been restricted to fifty, the limit has been reached on only two previous occasions and in each case a full list was maintained little more than a year. The list was first filled at the 7th Congress in 1889 by the election of Dr. A. P. Chadbourne, and sixteen months later, on March 10, 1891, a vacancy occurred through the death of Col. N. S. Goss. Twenty-three years later the limit was again reached in 1914, but the death of Dr. D. G. Elliot on Dec. 22, 1915, caused a vacancy and three others occurred before the next meeting in 1916.

The total number of Active Members or Fellows elected during the thirty-four years of the existence of the Union is apparently eighty-three. In addition to the fifty names now on the list of Fellows, are seventeen on the Deceased list, four placed on the Retired list (two now deceased), five transferred to the Corresponding list (four now deceased), and seven names of persons who either failed to qualify or retained their membership only a few years. Those transferred to the Corresponding list include: Montague Chamberlain, a Founder, 1901; Dr. D. Webster Prentiss, deceased, a Founder, transferred in 1895; Dr. J. G. Cooper, deceased, elected in 1883

and transferred in 1884; Capt. T. W. Blakiston, deceased, elected to the Active list in 1884 (Auk, 1884, p. 370) but always included among the Corresponding Members; and Walter E. Bryant, elected in 1888 and transferred in 1900, five years before his death. Prof. F. H. King, elected in 1883, apparently did not qualify, nor did Prof. F. E. L. Beal who was elected again in 1901, and six others retained active membership only a few years: H. B. Bailey, a Founder, until 1891; Prof. S. A. Forbes, 1883-1892; L. S. Foster, 1888-1902; Dr. Henry Kidder, 1883-1888; Dr. F. W. Langdon, 1887-1897; and W. E. D. Scott, 1886-1895.

Twelve of the twenty-three Founders are still living and ten are enrolled in the list of Fellows.—T. S. P.

CALLED TO THE COLORS.—At the recent meeting of the American Ornithologists' Union the Secretary was instructed to prepare a list of the members who have entered military service either with the army or navy. This instruction has been construed broadly to include not merely those who have been drafted but also those who are serving in officers' training camps, in hospitals, with the Red Cross, or in Y. M. C. A. military work. Such a list is necessarily incomplete and subject to constant change but will be of permanent interest in showing the part taken by members in the war.

ANTHONY, H. E., New York City. Officers Training Camp, Plattsburg, N. Y.

BEEBE, C. WILLIAM, New York City. American Flying Corps.

BOYLE, HOWARTH S., New York City. In France.

BROOKS, ALLAN, Okanagan Landing, B. C. Major Second Army School of Scouting etc., British Expeditionary Forces in France.

BROOKS, W. SPRAGUE, Boston, Mass. In the Navy.

BURLEIGH, THOMAS D., Pittsburg, Pa. Y. M. C. A. Army & Navy Association, in France.

CHAPIN, JAMES P., New York City. Officers Training Camp, Plattsburg, N. Y.

DUGMORE, A. RADCLIFFE, New York City. Captain, King's Own Yorkshire Light Infantry, now in the United States.

GRISCOM, LUDLOW, New York City. Officers Training Camp, Plattsburg, N. Y.

HARPER, FRANCIS, Washington, D. C. Corporal Co. C, 312th Machine Gun Battalion, Camp Meade, Md.

HOLT, ERNEST G., Washington, D. C. Corporal Co. C, 312th Machine Gun Battalion, Camp Meade, Md.

KITTREDGE, JOSEPH, JR., Missoula, Mont. First Lieut., 10th Engineers (Forest), in France.

MAYFIELD, DR. GEORGE R., Nashville, Tenn. In France.

MEYER, MISS HELOISE, Lenox, Mass. Red Cross, in France.

PEPPER, DR. WILLIAM, Major, Medical Reserve Corps, Ft. Oglethorpe, Ga.

- PETERS, JAMES LEE, Harvard, Mass. 2d Lieut. Quartermaster's Corps, Camp Devens, Ayer, Mass.
PHILLIPS, DR. JOHN C., Wenham, Mass. Medical Corps, Fort Benjamin Harrison, Indianapolis, Ind.
SANBORN, COLIN CAMPBELL, Evanston, Ill. Battery C, 149th U. S. Artillery, Fort Sheridan, Ill.
STEINSON, DR. ARTHUR M., Washington, D. C. Medical Corps of the Navy, Newport, R. I.
STORER, TRACY IRWIN, Berkeley, Calif. Base Hospital, Camp Lewis, American Lake, Wash.
YOUNG, JOHN P., Youngstown, O. Captain Co. —, Camp Dix, Wrightstown, N. J.

In addition to the above list mention should be made of Dr. and Mrs. Frank M. Chapman who have taken up their residence temporarily in Washington, D. C., and are devoting their entire time to work with the Red Cross, Dr. Chapman (F) being in charge of the Red Cross bureau of publications.

Relatives or friends who may have additional information concerning these or other members are requested to communicate with the Secretary giving any facts as to rank, branch of the service or present location of members in military service in order that necessary corrections in the list may be made from time to time.

1939 Biltmore St., N. W.
Washington, D. C.

T. S. Palmer,
Secretary.

JUST as we go to press we have received Dr. Frank M. Chapman's work on 'The Distribution of Bird Life in Colombia', forming Volume XXXVI of the 'Bulletin of the American Museum of Natural History' and embodying the results of the various expeditions sent out to Colombia by the museum during the years 1910-1915. This work which is one of the most important contributions ever made to neotropical ornithology well be reviewed at length in the April issue of 'The Auk'.